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CLIENT/SERVER

JUNE 1995

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CLIENT/SF

JUNE 1995

COVER STORY



What time is it in Tokyo? At many multinational companies, a local understanding of global operations is now an essential part of staying competitive. One way to get there: Populate the businesses with client/server systems that share data. However, "we're not finding this an easy paradigm shift to go through," one implementor says. Time zone, business and cultural differences are just the beginning. By Mary Brandel



Global Marine, Inc. Page 40



Bass PLC Page 42



Nestle SA Page 44

COLLABORATIVE COMPUTING

All Together Now

The vision is there: no-holds-barred cooperation and communication, thanks to a combination of groupware, document conferencing, videoconferencing and workflow.

But many systems are being built piecemeal, raising the danger of "islands of collaboration." Smart firms are building infrastructures that form a common ground. By Richard Adhikari



APPLE COMPUTER, INC.

An Outsider Looking In

Even tried-and-true Macintosh users are turning to Windows PCs when it comes to strategic client/server applications. Despite Apple's best efforts, a lack of tools and integration services is hurting the company where it counts the most. By Mark Halper

VERTICAL MARKET FOCUS: RETAIL

Working In Near Real Time

The margins are wafer-thin, and the competition is getting bigger and more bloodthirsty. Retailers are fighting back by moving beyond point-of-sale to decision-support systems that help them get a better view of what products are selling, where, when and to whom. By Ellis Booker



CLIENT/SER

INTERVIEW

Wanted: Radical Reinvention

The burning question is whether Unisys' Alan Lutz, a self-described "impatient son of a bitch," can meet his 1995 profitability goal using consulting, the company's Usoft division and parallel processors as his guides. By Neal Weinberg



CLIENT/SERVER FINANCIAL SYSTEMS

Financing The Future

54 CFOs need to count more than just beans these days. That has started many firms looking at the new client/ server financials. But few systems are beyond pilot stages, and all the software comes with trade-offs. By Mary Brandel

MANAGING POLITICS

Reaching Rapprochement

Hey, client/server implementors, show us those battle scars! And to avoid the war zone next time, veterans say, try one of these techniques: Seek compromise, enlist the CEO's help, play the benign despot and bypass corporate IS. By Steve Alexander

CAREERS

Client/Server **Boot Camp**

67 If our reporter can do it, so can you. Follow our decidedly nontechnical co-worker through one day of an intensive, four-week training course intended for consultant trainees. By Joseph Maglitta



The Skills Gap



68 Anecodotal evidence suggests IS organizations are straining to recruit good client/server personnel. A survey of 115 IS pros bears that out. The shift to distributed computing places a premium on technology's hot spots: wide-area networking, LAN administration and relational database management.



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The first 100 days include a systems overhaul.

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There's more to intuitive computing than Windows icons. By Kim S. Nash

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Ways to reduce mainframe cycle consumption. By Thomas Hoffman

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Don't fall into the promise vs. reality chasm. By William Zeitz

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It's not over until your vendor can talk "applications management." By Judith Hurwitz

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Borland's Delphi is fast and objectoriented. By Christopher Lindquist

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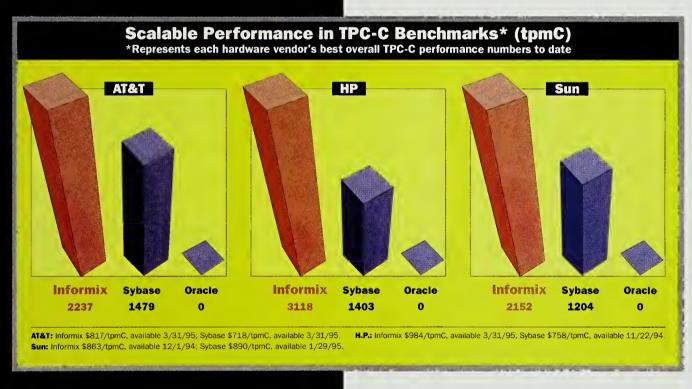
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MUTINY AND DESPAIR.

REMIND YOU OF DEPLOYING APPLICATIONS ACROSS YOUR ORGANIZATION?

Little notes of the control of the c

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PROGRESS SOFTWARE

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EDITOR'S NOTE **Alan Alper**

There's little consistency among systems and business processes in today's still fragmented world. Political battles can and often do ensue as local managers clash with corporate goals.

arshall McLuhan almost got it right. His concept of the "Global Village" correctly envisioned a world where a mushrooming mass media would eventually break down cultural and linguistic barriers, creating a more homogenized fraternity of man and womankind.

But the brotherhood of man remains an elusive goal (one look at the ethnic cleansing in Europe, Asia and Africa makes that clear). Although in no way consoling, these bloody battles are brought to us each day via global communications systems in horrifically graphic — but, hopefully, instructive — ways.

Clearly, the explosive growth of cable TV,

the Internet and various services such as CompuServe and Prodigy is making McLuhan's vision a reality among the educated masses. And in the corporate world, client/server computing is beginning to play a key role in transforming fragmented, loosely connected multinational operations into tightly coordinated, holistic enterprises.

One look at this month's cover piece, "Geographic transformation" on page 38, drives this point home. Large global concerns such as \$42 billion Nestle and \$7 billion Bass as well as smaller, \$150 million Global Marine are seeking ways to, as author Mary Brandel puts it, "get their arms around far-flung data." Their goal is to become more nimble, efficient and knowledgeable about various pieces of the business, not unlike a smaller, more local company would.

These companies see distributed computing, comprising threetier architectures, integrated applications, messaging technology, high-speed private and hybrid networks, intuitive Windows-based PCs and blazingly fast servers, as a means to that end.

But it's still far easier to conceptualize than to build such environments. With so many technology choices, standardization is a necessary requirement for leveraging distributed computing's promises of increased operational efficiency and rapid application deployment.

And there's little consistency among systems and business processes in today's still fragmented world. Political battles can and often do ensue as local managers clash with corporate goals.

Moreover, internal IT skills, third-party support and global vendor presence remain spotty, particularly in Latin America and smaller Asia/Pacific countries. This becomes critical when underequipped enterprise networks choke on unprecedented data throughput levels. Or when systems response times grind to a halt as unscalable applications gum up the works. Or when companies wonder how in the world they'll achieve 24-hour uptime or database replication to accommodate every time zone in the world.

Still, these companies, and many like them, are striving to shrink their world to compete strategically in the Global Village. And perhaps one day client/server will reshape the globe, making ours — as the Disney tune emphatically states — a "small world after all."

✓

Man Ulper

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Letters

8

JUST COMPLETED REVIEWING the article "Taming The Beast" [CSJ, April 1995] and felt compelled to commend your periodical for addressing such an important and often forgotten aspect of the New World of IT. However, there are a number of points that must be further explored.

The article correctly said client/ server projects can be successfully managed by leveraging best practices and experiences used in traditional IT projects. But IT approaches have often proved too ponderous to the consumer. More important is the commitment to completing a solution within agreed-upon time limits and incorporating control points.

To do this, project managers must focus on solutions, not processes. Project managers need to be sure that the proposed solution matches the original business case. In addition, design and development approaches, skills, tools and techniques must be matched to the specific case.

The article referred to incremental delivery as a way to manage risk more effectively than the waterfall approach. But incremental delivery is just one way to effect iterative development. Two others that come to mind are an incremental build approach and an evolutionary strategy. The appropriate approach depends on the particulars of the situation.

Finally, I would like to suggest that two important team member roles be considered essential when the project manager assembles his project team. First is the "reuse librarian," charged with leveraging existing IT investments and ensuring that the results of the current project can provide an annuity to the organization into the future. Second, the "human factors expert" should be enlisted early to set the strategy for crafting a human-centered solution. These two should be considered part of the project manager's cabinet.

Developing client/server solutions requires leveraging the best practices of past and emerging techniques to achieve what was simply not possible before.

BOB COEN
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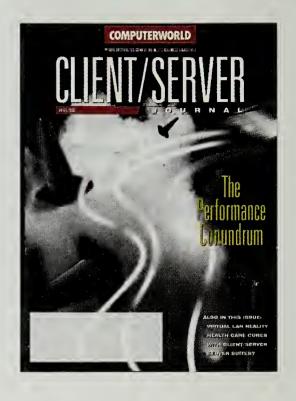
OUR STORY "A TANGLED WEB" IN the April issue of *Client/Server Journal* was outstanding. Though everybody seems to be writing about shopping on the Internet, few have raised the important issues about back-end systems that you have in this article.

I'm happy to say that FourGen Software has addressed the issues you raised.

Linkage: Most systems are not designed as high-volume transaction processing back ends. They're designed to be fed by one operator, with EDI as an afterthought. Our applications were designed to be back-end fed from various sources and any number of different front ends.

Security/Integrity: Here's another area where an EDI-based transaction system shines. We can support FTP, X.420 and X.435 standard protocols. As secure protocols are developed (secure sockets, for example), we only need to write the transport driver to front-end EDI.

EDI was designed as a batch-



oriented system with long delays. Our servers were designed to serve large volumes of data and large numbers of trading partners on-line and in real time using the Internet.

DAREN KLOES
Communications director
FourGen Software, Inc.
Seattle
darenk@fourgen.com

Jenkins' April 1995 report on performance management, "The Performance Conundrum," and agree wholeheartedly that "keeping response times in tune with users' needs and expectations" is critical to the acceptance of a server-based application. We suggest Jenkins add the use of automated software testing to his list of measurement strategies.

JOHN J. KILEY

President

Performance Software, Inc.

Newburyport, Mass.

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RULE #4: START ASKING QUESTIONS AND YOU'LL START GETTING ANSWERS!

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A REVIEW OF CLIENT/SERVER VIEWS AND EVENTS

Nextel Wired for Wireless Success

Company looks to flexible customer service system for whatever the future brings



ireless communications vendor Nextel Communications, Inc. may soon find itself wired into a new competitive arena where customer relationships will be as vital as technological prowess and/or historical position.

The reasons are twofold. The Federal Communications Commission's recent auction of new wireless spectrum for personal communications services has created a panoply of consumer-oriented revenuegeneration opportunities.

But wireless wizard Craig McCaw, who invested \$15 million in the \$63 million, Rutherford, N.J. firm - with an option to ante up \$1 billion more — reportedly opposes the firm's expansion into the mass consumer market.

Nevertheless, an evolving client/server customer service system could play a major role in helping Nextel outservice, out-customize and perhaps out-maneuver its primary rivals: established cellular carriers such as McCaw's former company, McCaw Cellular Communications, Inc., and behemoths such as the Baby Bells.

The system's big bang comes from its ability to manage customer relationships spanning multiple services. While competitive customer service systems are focused along specific service lines, "Our system supports myriad services, paging, radio dispatch and voice mail," said Isabel Ehringer, director of information technology. "It's capable of integrating all services and producing a consolidated bill or separate bill for national accounts or smaller regional accounts with equal flexibility."

Nextel's competitive advantage "comes down to timeliness of current information available," said Wendy Pinos, a technical consultant at Hewlett-Packard Co.'s Professional Services Organization who is on-site at Nextel. HP helped design and build the wide-area network that connects Nextel customer service reps.

That system, built by Computer Sciences Corp.'s Champaign, Ill., office, puts mainframe-based billing and service data into a form that can easily be queried and analyzed by Nextel customer service, support and sales reps.

Here's how it works: Mainframe-resident customer data is downloaded onto four HP 9000 servers. From there, users at 50 offices nationwide (running Novell, Inc. Net-Ware 3.12 LANs) linked via an enterprisewide frame-relay network can perform what-if scenarios to conjure up billing rate proposals or wireless service options.

The system also permits Nextel to more quickly set up service. If a Los Angeles customer, for example, calls Nextel and gets the first available rep in Sacramento, that rep just messages the Los Angeles service center with the appropriate data.

Written by Catherine McCrorey, managing editor of Computerworld Client/Server Journal.





GOOD-SOURCING

The negative connotations of the word "outsourcing" tend to take a backseat when it comes to client/ server. According to "G2 Monthly," users think of client/server outsourcing as a means to meet business goals such as improved product/service delivery. The newsletter, published by G2 Research, Inc. in Mountain View, Calif., also asserts that staff morale and turnover are less of an issue because client/ server outsourcing is usually a response to insufficient staffing.

ICON BELIEVE HE SAID IT

Bruce Tognazzini, a distinguished engineer at SunSoft, Inc., said he doesn't think icon-based computing is client/server's future. At the Uniforum show in Dallas, he showed a film depicting how people in the next millennium will interact with computers via voice activation and software agents. Afterward, he noted the absence of iconography on the user interface shown in the film. He joked: "There's not a lot of icons left — Microsoft's used them all up."

HEARD AT UNIFORUM

Should X/Open be called Y/Open or X/Closed? The purveyors of Unix unity believe in open systems, but the vendor community can't seem to get it right. No matter what, the club remains closed to Microsoft.

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OR DIE."

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"Composer by IEF is very exciting. We have converted models, converted code and have not had any problems. We have been having a great time with all the new features." – PSI Energy

"Composer by IEF will save the enterprise time and money." - State of Missouri

"TI provided a tool and methodology which allowed us to keep IS resources firmly committed to business issues as opposed to the technical complexities of developing a client/server application." -Travelers Insurance

Judges were recently so impressed with Composer by IEF, they gave Texas Instruments and Travelers Insurance the DB/EXPO '94 RealWare Award for "Client/Server Computing in Support for Mission-Critical Business Opportunities."

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PROJECT PERISCOPE

A quick glance into client/server developments at user sites nationwide

BANKING ON COBOL

Like most large organizations, Chevy Chase Bank had a big investment in its mainframe environment, including its

programmers' Cobol skills. So when the \$6 billion Chevy Chase, Md.-based bank decided to move to client/server, it leveraged its legacy investment by choosing Micro Focus, Inc.'s Cobol Workbench v3.2 for development. First, the bank used the

tool to build its distributed computing infrastructure. Chevy Chase created its own middleware with Micro Focus and then built solutions on top of the infrastructure. Its operating environment comprises some 2,200 clients, 1,200 of which are OS/2 LAN-based workstations in branches. The server environment consists of an MVS CICS application server, AIX Unix server and OS/2 server supporting the bank's applications. Chevy Chase's 3,000 users now leverage the power of a branch delivery system, a loan processing application called MortgageVision and a financial management service called Finance-Vision. MortgageVision has reduced

the loan-approval process to 20 minutes, and FinanceVision gives bank customers a quick view of their investments.

GONE HOLLYWOOD

If you someday see a Jurassic Park video game on the shelf at your local video store, the Silverrun upper-CASE database modeling tool helped make it possible. Entertainment power-

house MCA, Inc. is using Computer Systems Advisers, Inc.'s Silverrun to model new applications across its many divisions. Silverrun lets MCA store in a central repository data definitions and objects about the Universal City, Calif., firm's movies that MCA can reuse when it enters the movies in other markets. For example, data about Jurassic Park originally resided with the Motion Picture Division. Once released on video, it became the property of the Home Entertainment Division. Thanks to Silverrun, the Home Entertainment Division didn't have to reinvent the wheel to obtain the movie's attributes; it just accessed the Silverrun central repository. Silverrun provides consistent data models across MCA's technical platform, made up of IBM mainframes, AS/400s and RS/ 6000 servers accessed by IBM PCs and some Macintoshes and connected by Novell, Inc. NetWare LANs.

UNDER THE GUN

The Law Enforcement Support Agency in Tacoma County, Wash., is realizing important benefits from client/server: getting criminals into the legal system more quickly and accessing in real

> time data that can impact the safety of citizens and law enforcement personnel. About 300 legal administrators are using Sybase, Inc.'s OmniSQL gateway to access data residing on a VAX/VMS minicomput-

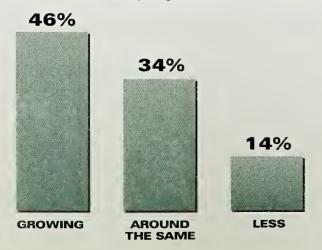
er from a local Sybase/PowerBuilder application called Legal Information Extension (Linx). Linx gives administrators current information on arrested individuals. With the gateway, even remote users can access information such as criminal histories.

GLOBAL WARMING

Client/server is starting to heat up in the global arena, with most organizations surveyed saying their client/server budgets are growing . . .

COMPARISON OF BUDGETS IN 1993 AND 1994

Percent of respondents



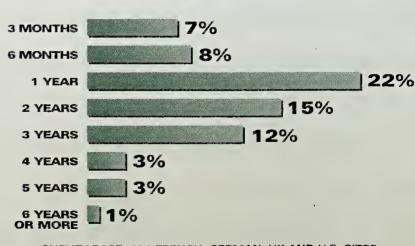
SURVEY BASE: 164 FRENCH, GERMAN, UK AND U.S. SITES

Source: Ovum Ltd., London

and most expecting a return on investment within one year. For more information on client/server in the global marketplace, see story page 38.

TIME EXPECTED FOR RETURN ON INVESTMENT

Percent of respondents



SURVEY BASE: 124 FRENCH, GERMAN, UK AND U.S. SITES

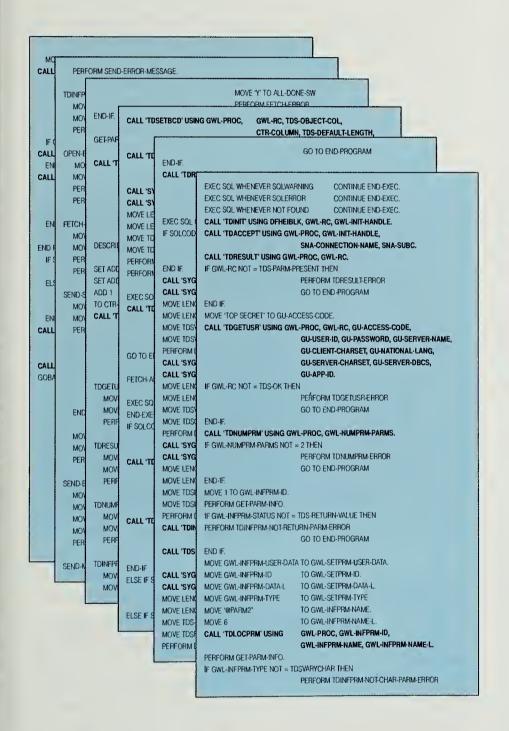
COMPARE MAINFRAME DATA ACCESS

Sybase

71 lines proprietary code

Oracle

O lines proprietary code



** Taken directly from Sybase Open/Server Mainframe COBOL Programmer's Reference, pgs. C-3 through C-14. © 1994.

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The Sybase code on the left queries rows from one OB2 table and returns those rows to the client. This simple query example, taken directly from Sybase's "Open Server/Mainframe COBOL Programmer's Reference" manual, requires you to embed 71 lines of proprietary Sybase gateway code into a 222 line mainframe COBOL program.

To access mainframe data with Sybase's "Open Server" you must rewrite your existing mainframe transactions and embed Sybase proprietary interface calls. In contrast, Oracle's "Procedural Gateway for APPC" uses standard IBM APPC interfaces, so you can access mainframe data using your existing mainframe transactions without modification.

Furthermore, because Sybase uses a proprietary interface to access mainframe data, you must install and run their "Open Server" product directly on your mainframe. Since Oracle's "Procedural Gateway for APPC" uses standard IBM APPC interfaces, no additional software on your mainframe is required.

Finally, Oracle's standard APPC interface runs much faster than Sybase's proprietary interface, so you access your mainframe data more quickly as well as more easily. If you want easy-to-use, standards-based, fast mainframe data access technology call Oracle at 1-800-633-1071 Ext.8118.



BU##WORDS

A compendium of recently generated buzzwords:

DIAGONAL APPLICATION: An application that cuts across vertical markets and functional areas within an organization — for example, SAP.



TIMEBOX: A firm date to get some element of a client/server project completed.

COMPONENTWARE: GUI front ends built by using predefined objects.



OBJECTORY: A repository of business rules in object form.

LITTLE BANG: Moving off the mainframe in incremental fashion — starting with the migration of applications such as human resources that are not tightly integrated with other operational systems. This is a less risky approach.



BIG BANG: Converting all systems in one fell swoop. You get the biggest payoff, but it's very expensive and difficult to manage.

Can Congress, Inc. **Be Far Behind?**

First 100 days sees GOP go corporate, complete with client/server systems overhaul

epublican control of Congress is giving the Grand Old Party a chance to make good on grand old promises of making government more accountable and efficient. One manifestation: The unabashed, corporateminded GOP is trying to run the U.S. House of Representatives like a real business. And the party's counting on client/ server systems to help it accomplish its ideological ends.

The GOP-led House ban on absentee voting forced the legislative body to revamp the way it conducts business. At the crux was finding a way for 435 reps sitting on one to three committees plus multiple subcommittees to physically attend every important vote and hearing. And time was of the essence, given the flurry of activity expected from House Speaker Newt Gingrich's "Contract With America," which promised action on 10 bills in the first 100 days of the 104th Congress.

By February, the GOP had a plan: eradicate paper-based communication and scheduling. It began installing a Notes network to share voting views and scheduling information and a client/server project management system, fashioned around Microsoft Corp.'s Microsoft Project and Micro-Frame Technologies, Inc.'s Project Server. The systems are part of a reported \$1.5 million House office systems upgrade.

"Newt Gingrich is like a CEO or chairman of the board trying to provide strategic direction, and [House Majority Leader] Dick Army is like a chief operating officer making sure everything is functioning the way it's supposed to," said Marshall Cromwell, account manager at U.S. Connect, Inc., a Washington systems integrator on the project.

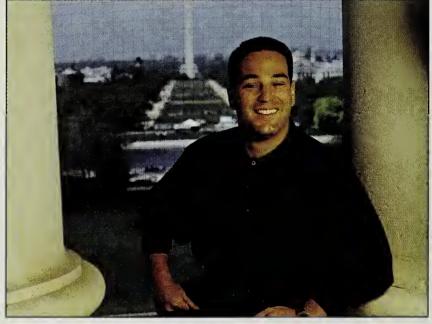
As of April, the project management system was available on four Windows PCs linking GOP leadership via the House's network backbone. It's managing 65 projects and tracking some 1,000

user can click on an icon and receive a schedule of what [the congressman] is working on and where [he] has to be for a particular period of time," said John O'Neil, Micro-Frame's president.

Sampson considered using Notes to distribute congressmen's schedules but said he found the approach "cost prohibitive."

Access to the project management system is expected to be extended to individual committees later this year. The Windows NT-based Notes network already connects some 27 users in the speaker's office and 25 users in the majority leader's office.

Has client/server had any : impact? Sampson said he can't



John Sampson spearheads movement toward a system update

project resources on an Intel Corp. Pentium-based NT server running SQL Server 6.

"The system looks at relationships between bills, duration of hearings and milestones set and calculates dates to ensure their completion," said John Sampson, assistant to the speaker and majority leader who is functioning as in-house integrator and systems administrator.

"When the whole thing is loaded, a [computer-literate] point to a single vote that the technology affected because the systems weren't operational until halfway through the first 100 days. "Some conflicts could have been avoided if we had the system in place [earlier]," he said. "I think down the road we'll be able to say" that the systems helped avoid scheduling conflicts.

Written by Alan Alper, editor of Computerworld Client/ Server Journal.

How Are We Doing?

CSJ FAXBACK

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CLIENT/SERVER



GAP Syndrome

The gulf between what client/server promises and what it delivers is widening, but vendors and customers can bridge that GAP

BY WILLIAM ZEITZ

ou won't find it listed in the DSM IV (the bible of psychiatric diagnoses), but like other maladies of the information age, it cannot be ignored. It's called the Grand Application Promises (GAP) Syndrome, and it's highly contagious.

What is the GAP Syndrome? It's the seemingly ever-expanding gulf between client/server's promises and its results. Unfortunately, GAP is spread by client/server vendors, the media, gurus and, yes, even the IS professionals who are supposed to be immune to such infections.

Client/server vendors have actively promoted the technology's ability to solve every business problem. You want to save money? Client/ server is your answer. Want to downsize, consolidate or reengineer? Client/server is the answer! Even IS professionals have jumped on the bandwagon to curry favor with senior management or promote their own agendas.

Since the early '70s, the dream of every visionary information technology executive has been to create an environment where any authorized person can access, analyze and report on data, located anywhere, without IS intervention. The distributed processing environments of the '80s came closer to that dream by improving data access by decision-makers, but ultimately, they fell short.

In the '90s, client/server

technology is seen as a vehicle to enable the distributed computing dream to become reality — delivering on promises of improved customer service, reduced time-tomarket cycles and higher productivity.

However, client/server vendors and IS professionals have not delivered adequate software to support missioncritical and operational-level processes — i.e., the transaction-intensive daily activity that provides companies with baseline data to support their decision-makers and speed the products/services being sold to their customers.

And then there are GAPs. GAPs between the expected benefits of client/server and the realities being experienced. GAPs between the great application promises made by vendors, IS pros, consultants and gurus and the actual deliverables. These GAPs have widened to a point where even the gurus are retreating to their ivory towers to ponder what went wrong.

Moreover, the GAP is widening every day between what vendors believe customers know and what customers really know; between technology's ability to meet changing business needs and customers' experience; between expected ease of integration of enterprisewide client/server software components and the actual difficulty in doing so; between implied ease of linking client/server and legacy systems and the complexities of making it happen; and be-



tween expectations of primary vendors' accountability for after-sale support and the lack thereof.

Is there a cure for the GAP Syndrome? Maybe not, but customers and vendors can help bridge the GAP by doing the following:

- Make a top-down commitment to change the way things are done today.
- Have realistic expectations of what client/server can do.
- Involve senior executives in the whole process.
- Select the right project manager and consulting resources.
- Offer training/education at all levels.
- Allocate and dedicate sufficient resources.

Vendors can also help by doing the following:

■ Engage industry experts who have specific industry knowledge as well as proven track records.

- Qualify consultants as they get on the gravy train.
- Support industry centers of excellence where customers can come for demos, prototypes, education/training, customization expertise and turnkey implementations.

Effective deployment of client/server is critical to your company's survival. You can succeed in harnessing its power for competitive advantage by taking preventive measures that avoid GAP paralysis.

Zeitz, formerly chief information officer of American Cyanimid's Agricultural Division, is now president of Zeitz & Associates, a consultancy in



New York that specializes in client/server deployment and management.



The blending of voice, data and images enhances collaboration but requires a carefully

planned infrastructure

t would enable the most brilliant minds in the company to work together, regardless of where those minds reside. It is the answer to white-collar productivity, flexible team-based corporations and flat management structures. No obstacle — not geography, not time differences, not sick days, not acts of God — can stand in its way.

What is this miracle cure? Collaborative computing. Or so some think.

Many executives are drawing up grand plans to get their organizations communicating and cooperating both internally and with outside customers and suppliers, whether through workflow, document management, electronic mail, white-boarding, document conferencing, videoconferencing, computer/telephony integration, just plain Notes or (often) some combination thereof.

"If the organizational, technical and software infrastructures are set up right, this can result in a very effective, dynamic kind of interchange," said Susan Opper, president of consultant firm Opper & Associates in Alford, Mass.

Currently, bits and pieces of these collaborative dreams are being put into place around client/server technologies. However, a number of obstacles block the implementation of whole-company, mixedmedia collaboration systems.

For one, "the technologies are clearly vertical and were developed that way," said Bob Malik, chief information officer at Unum America Corp., a \$3.6 billion group disability insurance provider in Portland, Maine.

The danger: creating islands of collaboration that are great for Please turn to next page

together nov

BY RICHARD ADHIKARI



Myles Trachtenberg says Chase uses Notes to bypass geographical limitations

Continued from page 19 the groups that can use it but difficult for intergroup communication.

"It would be very easy to implement 50 different types of codecs, ensuring we won't be able to talk to each other," said Myles Trachtenberg, vice president of distributed technology services at The Chase Manhattan Bank NA in New York.

That was a very real danger at

Chase, which plans to use not one but three different conferencing systems plus Network Notes, a joint project between Lotus Development Corp. and AT&T Corp. — to meet its collaborative goal: to "extend the enterprise out to the customer" and make all forms of collaboration as simple as picking up the telephone, Trachtenberg said. "It will appear to the customer that there's one system."

The \$114 billion asset institution is partway there. The key, Trachtenberg said, is to create a "core platform" that tolerates differences in the technology running on top of it.

In Chase's case, that core consists of IPX for data transport; Integrated Services Digital Network for wide-area transport; H.320 (a videoconferencing standard), T.120 (a document conferencing standard) and Network Notes for store-andforward messaging with real-time data sharing; and video imaging layered on top.

"We may have someone within corporate finance who needs to talk to the London [trading] desk in conjunction with a customer in their office. There should be no question that they can select the location from a menu, click on it and it connects," Trachtenberg said.

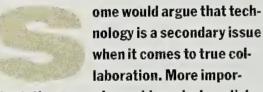
So why three different systems? Because of different customer needs. Executives use 15 to 17 frame/sec. room-based conferencing systems from Picture Tel Corp. to consult with global customers. For private banking customers, nothing but 30 frame/ sec. will do, so Intel's ProShare will likely be used.

Chase traders, on the other hand, keep tabs on one another using a dedicated phone line-based videoconferencing system from Uni-Data and Communications, Inc. in Flushing, N.Y. The system is used by traders on two floors of the New York headquarters building as well as between London and New York.

This kind of integration is not a natural byproduct of collaboration technologies. "They're succeeding in terms of return on investment, which means they tend to deal with busi-

Please turn to page 22

SEEING THE LIGHT



tant, these people would say, is demolishing traditional corporate structures.

Nowhere is this more true than at Danish hearing-aid manufacturer Oticon Holding A/S in Copenhagen.

In 1991, the 87-year-old firm was in the red, despite having only a 10% share of the worldwide hearing-aid market. That was before it became what President Lars Kolind calls a "spaghetti organization."

Today, there are no formal departments. Instead, fluid workgroups are created for projects, and staffers are expected to perform more than one function.

Oticon's headquarters is a fully open room with an array of drawerless desks, mobile telephones and PCs running office, engineering and other applications. Everyone, including managers, has a wheeled trolley with hanging files.

There is also no paper or electronic correspondence. Kolind insists on face-toface communication to keep things informal. Mail is scanned into a document workflow/imaging system from Recognition International, Inc. in Sunnyvale, Calif., and then routed automatically

over HP's NewWave to staffers' E-mail boxes.

Except for some files pertaining only to management, all documents in the repository are generally available.

The openness paid off when employees, searching for new projects, found plans for the first fully automatic hearing aid, invented at Oticon in the mid-'80s. This helped turn Oticon's fortunes around. The company hammered out a new product, its Multi-Focus hearing aid, and put it on the market in less than four months - by the end of 1991.

"This process of production and mar-

keting would normally take two years," said information technology coordinator Torben Petersen. By 1993, sales had improved by 19% and gross profits by 25%. Profit margin increased from 5.8% in 1992 to 12.9% in 1993. Administrative expenses remained unchanged.

But such open collaboration isn't for all.

Law firms, for example, are internally competitive.

"The future and compensation of guys in those firms depends not on collaboration but competition," said John Heckman, a consultant at New York

systems integrator Kraft, Kennedy & Lesser. "The standard law firm model where they hire a whole bunch of people and, some years later, 10% of them get to make partners - this does not lead to collaborative relationships."

Kolind used the carrot-and-stick approach. He told staffers to toe the line or else. He then had them form little groups, stepped back and let the enthusiasm flow.



"In my nightmare,

I'm trapped

inside a huge document titled 'Files

My Staff Can't Get To

Because

The MIS Manager

Bought The

Wrong

Data Storage

System. One That

Doesn't Give

The Entire

Company

Continuous

Access

To Information.'

Circling me are

flowers with the face of the MIS Manager.

1 scream at them

to let me out,

but they just say,

'l don't hear anybody talking.

Do you hear anybody talking?'"



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ten-second definitions

WHITE-BOARDING: Two remote users can "share" a PC screen. Technology today restricts WAN use to two users at a time. White-boarding will increasingly be absorbed into PC applications such as word processors and spreadsheets.

(also known as audioconferencing): Two remote users can make notations on a shared document. The application runs locally on just one of the users' PCs. Like white-boarding, document collaboration is mostly point to point over the WAN and is being absorbed into PC applications.

DIGITAL SIMULTANEOUS VOICE AND DATA: A new modem methodology that allows you to send data, voice and video at the same time. The technology has been around, but today's fast modems make it more feasible.

Continued from page 20

ness automation and not with enterprise infrastructure," said Bruce Silver, principal analyst at consulting firm Bruce Silver Associates in Weston, Mass.

For that reason, "companies are moving cautiously toward collaboration," Silver said.

"You don't want to bite off too much," agreed Joe Aubuchon, enterprise program manager of information systems at aerospace firm McDonnell-Douglas Corp. in St. Louis. Aubuchon wants to develop a collaborative environment because, he said, it reflects the way people work.

Groupware looks to be a safe first step. Aubuchon is replacing the current Microsoft Corp. Microsoft Mail system with Novell, Inc.'s Group-Wise on 10,000 to 12,000 desktop PCs and Macintoshes. GroupWise is an integrated product that offers users one point of access for multiple types

of data, including E-mail, Internet and X.400 messages; faxes; calendar items; and voice messaging.

Down the road, Aubuchon is planning to look at Collabra Share, a group discussion package from Collabra Software, Inc. in Mountain View, Calif. Novell and Collabra recently inked a pact to integrate Collabra Share into GroupWise.

Using groupware, Chase is similarly able to transcend geographical boundaries. Each of the bank's many business areas — the trading floor, corporate finance, private banking and wholesale/retail banking — is supported by international teams of experts who develop best practices approaches to business problems by sharing documents and data using Lotus' Notes.

"Notes is a strategic platform that we're using to enable workflow across geographies and environments," Trachtenberg said.

The collaborative approach has long been the norm at computer vendor Hewlett-Packard Co., according to Robert Walker, corporate director of IS.

But now HP wants more. "We're trying to make geography increasingly irrelevant to how we work," Walker said.

To that end, HP is "pretty aggressively" implementing software such as Notes. In addition, "we're running experiments on desktop video-

conferencing to understand where the business value is," Walker said. Document imaging and workflow software will also be part of the solution. Already, HP's U.S. field sales office has automated some human resources applications with workflow and imaging software.

These technologies — voice mail, desktop videoconferencing and document imaging — will be built on top of HP's proprietary E-mail backbone. "In the absence of a single standard, you have to pick one standard to allow people to communicate," Walker said. "Everyone has to adopt

the infrastructure by fiat or you'll have the Tower of Babel."

Executives at Unum see collaborative computing as a way to reinvent its business. "We have more than 9,000 employees worldwide, and our goal is to provide them with information so we can leverage their knowledge across the enterprise," Malik said. "No one can duplicate that."

Unum maintains corporate document repositories on mainframes and is looking at implementing business television, document imaging, voice-response systems, E-mail and videoconferencing.

Already, any of the company's 40-plus U.S. offices can trade images and E-mail instantly over a leased-line network with one another as well as with London and Tokyo using Lotus' CC:Mail and OVVM, a feature from IBM's Professional Office System E-mail system. Videoconferencing was introduced to 10 of the parent company's offices in the U.S. as well as in London and Tokyo in May.

In the next two to three years, experts say, collaborative technologies will mature, prices will fall, standards will be set, and they will become commodities. At this stage, Silver said, they may extend to the enterprise.

And in four to five years, workflow applications will be absorbed into the operating system, said Tom Koulopoulos, a principal at research firm Delphi Group in Boston. "The

business operating system will be a complete environment, with all the functionalities of today's workflow applications. That's what the ultimate collaborative environment will be."

Perhaps a bigger job is changing the corporate culture.

"The model in American business is you are a rising star and are rewarded for outstanding work. There has to be a shift so that the value of teamwork and collaboration is seen as growing," Opper said.

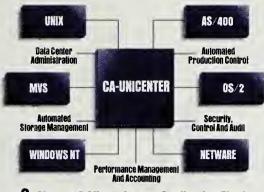
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Adhikari is a freelance writer based in Toronto.



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And Boost
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Operating System
Across Your Entire
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3. Choose A Client/Server Application That's Interoperable, Scalable and Portable.

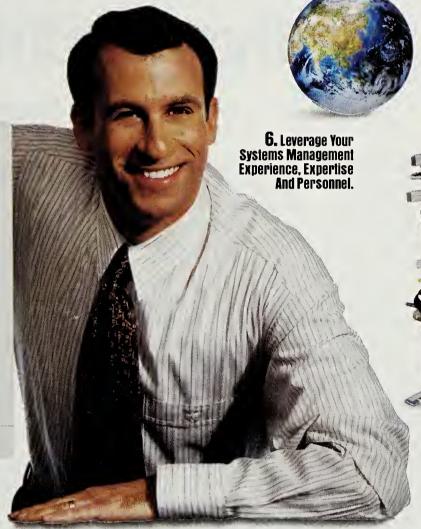


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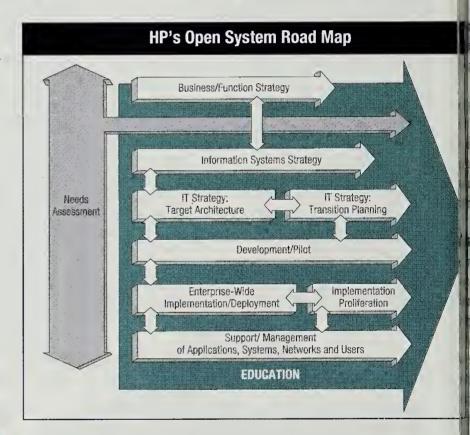
Perspective

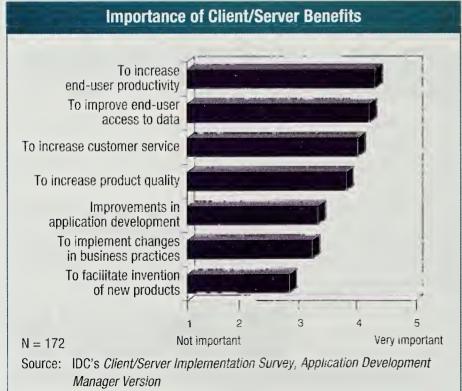
Delivering Client/Server

Sponsored by Hewlett-Pad

The growth of client/server computing continues at a rapid pace throughout the world of information technology. Client/server has been in use for many years, but there was recently a dramatic increase in positive perceptions of the architecture, according to IDC research conducted in 1994. This favorable shift was noticeable across industries and IT environments, indicating a fundamental turning point in user attitudes and spending plans.

Information can be a strategic asset only if it is available at the right place at the right time at the right cost and in a usable form. Client/server and other distributed computing architectures allow increasingly sophisticated users to take advantage of increasing desktop power, bringing information closer to the place where it is needed for making decisions. In addition, open systems servers have gained in robustness and functionality. Once users understand client/server and the many advantages that it can offer, they give it a serious look for an increasingly wider spectrum of applications. As shown in the figure below, increasing enduser productivity and improving access to data are two of the most important benefits from client/server.





Hewlett-Packard's Approach to Client Server

Hewlett-Packard has been involved in client/server since the mid-80's, and today the company offers one of the broadest open systems product lines in the industry. At the center of HP's client/server offerings are the HP 9000 business servers; HP 9000 workstations; HP-UX, HP's UNIX implementation; and client/server enablers such as HP OpenView enterprise management solutions. The product family includes a broad range of servers that are fully scalable, meaning that the same application can run on a variety of platforms, from the smallest

server to a mainframe class server. Scalability allows a company start with a smaller system ad not worry about compatibilities as its demands for information processing grow over time

One of the key challenges customers moving to opaclient/server computing is man ing their increasingly complex reworks of multiple platforms from multiple vendors. HP uses Open Systems road map to hapotential customers implement advanced IT solutions. This romap is a systematic approach to the consultants apply so that compens can take advantage of the open systems paradigm. The romap integrates consulting, edu-

An Executive Briefing

lutions to the Enterprise

d and Lawson Software

n, support, and integration seres to address issues specific to h customer.

One of HP's premier partrs is Lawson Software of inneapolis, Minnesota, an rly provider of client/server counting, human resources, aterials management, and disbution management software.

wson Open Enterprise

wson Software offers a strong of applications across multiple rdware solutions. Client/server plications are typically partimed into three components: er interface, application logic, d data management rather than mbined into a single monolithic plication. Lawson uses the ree-tier concept of layering the tical architecture components, abling customers to place the mponents where they will be ost effective in addressing busiss processes and user requireents. Lawson provides a broad nge of applications to address

organizational requirements for accounting, human resources, distribution, and materials management solutions (see table below). stored on by pointing and clicking on the necessary field. They will be shown a series of pop-up windows that show the additional detail drill downs for the field

"I think Lawson and HP are a good fit. We're not an information technology company, we're an airline service company, and running Lawson on HP has allowed us to concentrate less on technology and more on addressing other business needs."

— Jim Ham, Aircraft Service International

The common "Lawson look" across applications is made possible by the UNIVERSE Environmental System, which enables users to run applications seamlessly on multiple hardware solutions and heterogeneous databases. Using this system, Lawson applications are also able to run in a character-based environment if desired. A notable feature of the Lawson approach to end user data access, sure to enhance accounting staff productivity, is called Drill Around™. Users can access detailed records no marter what database they are

selected. This feature is very powerful, as it enables access from high level documents to original source documents simply and easily. Drill arounds are created through Lawson's sophisticated rules capabilities, and users can create new ones or modify existing ones at their desktop. No hard coding is necessary.

IDC Opinion

HP's success in establishing itself as a leader in the commercial multi-user UNIX world is unquestioned, and the company has an enviable history of delivering value to the customer. In particular, the reliability of its hardware and the responsiveness of its service and support operations are often cited positively by cus-

> tomers. Likewise, Lawson's offerings have been praised by growing numbers of users from a wide range of industries. Few

other accounting software providers offer as broad a range of client/server solutions today utilizing one common application code. Companies seeking to upgrade their accounting systems, whether they are downsizing off the mainframe or upsizing from PC-based solutions, should consider the HP-Lawson approach.

This Perspective was written independently by IDC and sponsored by Hewlett-Packard and Lawson Software. For a complimentary copy of IDC's full White Paper, *Delivering Client/Server Solutions to the Enterprise* please call 1-800-477-1357.



Lawson Business Applications			
Accounting	Human Resources	Distribution Management	Materials Management
General Ledger Accounts Receivable Accounts Payable Fixed Assets Project Accounting Currency Management	Payroll Personnel Admin. Benefits	Order Entry/ Sales Analysis Inventory Control Demand Forecasting Purchase Order Requisitions Accounts Receivable Electronic Data Interchange (EDI)	Requisitions Purchase Order Inventory Control

Working in New Real Time

urn-of-the-century shopkeepers lacked computers and high-speed data networks. But in a very real sense, they had better ways of managing their businesses than the multistore chains of today.

From behind his marble counter, a shopkeeper could keep an eye on inventory levels and quickly reprice merchan-

dise in response to a competitor discount down the street. Most important, he could respond immediately to customer needs, dynamically adapting to a changing market.

Trying to replicate these time-honored, decisionmaking functions in a modern, distributed setting has been tremendously challenging for retailers and their information systems minions.

Many have already taken the point-of-sale (POS) route. Even some mom-and-pop chains have placed intelligent workstations at the checkout counter and tied them to central "in-store" processors. With these systems, front-line troops and store managers know exactly how much of a given product has been sold and are better able to handle the ebb and flow of business in their stores.

RETAILERS

EXTEND BEYOND

POINT-OF-SALE

TO ANTICIPATE

WHO WILL BUY WHAT,

WHEN AND WHERE

But in the cutthroat, slim-margin retail trade, such systems have limited impact on the strategic needs of the enterprise. Multistore chain headquarters, comprising dozens or in some cases hundreds of selling locations, are desperately seeking more flexible software tools to analyze the tons of data pouring in from the field stores.

Tired of constantly misreading ever-changing consumer trends and, worst of all, reacting to rather than anticipating or out-thinking competitors, many retailers are implementing client/server-based decision-support systems (DSS). These systems are similar to the old shopkeeper's eyes, ears and nose: They can analyze what is selling, where it's selling, even when it's selling and to whom it's being sold and thus help determine optimal pricing and inventory levels as well as the most targeted way to promote each store's wares.

These DSSs usually consist of a relational database residing on a Unix server (or even on massively parallel processors). The database houses a subset of mainframeheld store activity information and sometimes other data, such as inventory, pricing, market intelligence and even

BY ELLIS BOOKER



weather reports. The information can then be sliced and diced in myriad ways by planning staffers at headquarters armed with standard, PC-based SQL query tools and report writers (see chart, page 28).

That is what the future will look like at Federated Department Stores, Inc., a \$15 billion retail giant based in Cincinnati that recently began a massive migration of its corporate infrastructure and applications to client/ server. The mass merchant's initial client/server application, a budget tracking and reporting system, went into pilot testing at the home office in mid-April.

"Eventually, [that system] will be rolled out to all the other divisions," said David Guzman, director of information technology architecture at Federated Systems Group, Inc. in Norcross, Ga. He said he expects the application, which will service 2,200 users, to take over by August the work now handled by various mainframes.

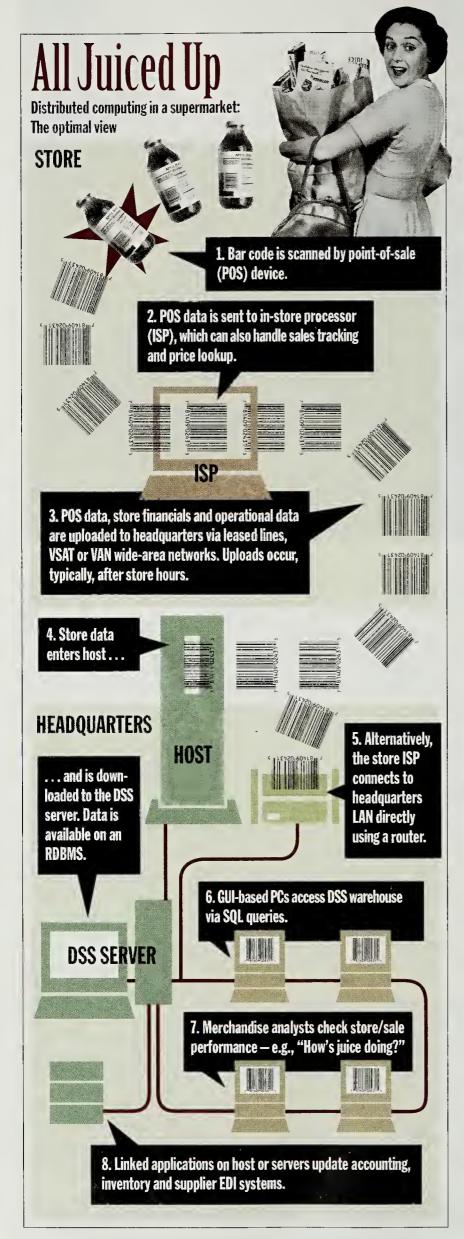
Because Federated is moving to a centralized structure rather than a divisional one, "we need an architecture that works across all the units," said Jim Ferry, senior vice president at Federated Systems Group and Guzman's superior. The new structure will support, for instance, a consolidated vendor file, which will enable executives to watch a supplier's activity level across all the business units. "That can be done on mainframes, but it's very cumbersome," Ferry said.

The new architecture, constructed after a major business and technical review in 1993, will replace the stovepipe mainframes and applications that currently run Federated's far-flung business empire, comprising some 500 stores under household names such as Bloomingdale's, Macy's, Lazarus, Burdine's and Bullock's.

While Federated is intent on keeping its mainframes, the U.S. Navy Exchange Service Command (Nexcom) has embarked on a total conversion to client/server. The \$2.1 billion Navy unit is responsible for 2,500 worldwide sales locations, ranging from ship-based floating stores to traditional post exchange discount stores.

But in July 1993, there was no way to keep track of it all. Nexcom owned a flotilla of systems across its far-flung operations: ancient Unisys Corp. mainframes, obsolete Honeywell, Inc. equipment, keypunch systems and IBM 3090 mainframes. The old systems sported 15 general ledgers and 33 files on suppliers but "didn't tell us what we'd sold or what was in stock," said Sue Dubman, chief information officer. Figuring out the best mix of inventory in this environment was very difficult, to say the least.

Please turn to next page



Continued from page 27

And so Dubman initiated a dramatic change of course. The new systems architecture consists of Unixbased POS and back-office systems on Unix servers across a new, global TCP/IP network. Dubman is captaining the \$64 million project from the dry dock of the unit's Virginia Beach, Va., headquarters.

Today, Nexcom has completed its POS rollout and in April went live with an integrated Unix-based accounting system from Lawson Software, Inc. in Minneapolis. Dubman said she expects to have a new merchandising system up and running by October on a multiprocessor Unix server from Hewlett-Packard Co.

Once the new systems are deployed, Dubman expects whopping cost savings of \$50 million per year. "It'll come from reductions of operational costs, from streamlining the supply chain," she said. "The savings aren't from the technology but rather from a change in the business itself."

Like Federated, Nexcom expects to realize savings across its entire supply pipeline, from order processing to pricing to efficient restocking.

Client/server computing supports this effort, CIOs say, because new applications for monitoring and manipulating data can be deployed quickly and many more users can access the data residing on scalable, open systems.

Yet Nexcom's head-to-toe immersion in client/server is rare. "Very few companies are rolling up store-level data from Unix-based store systems to Unix-based systems at headquarters," said Diane Dempsey, a senior manager at the retail consulting group of Ernst & Young in New York. Most retailers are still consolidating store information at night, which means that store planners are still not working with real-time information.

CLIENT/SERVER ONLY TO AN EXTENT

More the norm are retailers that retain their existing mainframes as data repositories fronted by nimble, client/server-based data warehouses accessed by users on a corporate LAN. "We aren't betting the core business operational systems on client/server," said Brian Kilcourse, CIO of Longs Drug Stores, Inc. in Walnut Creek, Calif.

Longs Drug has yet to put client/server in its store locations at the point of sale, nor has it moved merchandising systems off of time-tested mainframes. However, the retailer recently installed a client/server DSS to replace a DB2-based sales tracking system. The reason: The IBM 3090-based system was inflexible, could not handle ad hoc queries and was often unavailable to merchandise managers.

Longs Drug picked an IBM RS/6000 Unix server and a relational database optimized for decision support from Red Brick Systems, Inc. in Los Gatos, Calif. "The Red Brick database is highly structured and, unlike a data

Please turn to page 30

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DISPARATE DATA

Acquisitions — four of them in the past 21/2 years — posed a data consolidation challenge for Whole Foods Market, Inc., the largest U.S. owner and operator of natural food stores.

Each new store had its own way of doing the numbers, explained CIO Carl Morris, who joined the \$400 million Austin, Texas, company in January. As a result, closings were taking four weeks. Remote store data was collected at headquarters on a Unix box and then manually reformatted and entered into the headquarters system for a consolidated report. Analysis was also manually intensive, Morris said.

So in February, the company decided to standardize its ordering and financial systems with FourGen Software, Inc. software and an Informix Software, Inc. database running on a Data General Corp. platform. Morris' IS group, which ballooned from two to 10 employees, installed an eight-processor DG Aviion machine at headquarters' offices to link all 40 stores in the field. Closing cycles are now down to two weeks and may eventually fall to one.

The company's six distribution centers are now being linked to the general ledger. They will install FourGen order entry, inventory control, replenishment and purchasing applications.

TIMELY ACCESS

What's the use of spotting buying trends if you can't act on them immediately? That thinking has placed massively parallel systems into retail giants such as Wal-Mart Stores, Inc.

In January, Wal-Mart deployed the largest commercial database system in the world to support its decision-support needs. Based on an AT&T Global Information Solutions 3600, the 2.7T-byte system consists of 476 processors and more than 1,000 disk drives. After all, it's collecting data from 2,729 retail outlets nationwide.

Without massively parallel systems, trend-spotting would take weeks. This would defeat the goal of having information about market trends soon enough to act on it.

TARGETED PROMOTIONS

Customers at Thriftway Food & Drug, Inc. in Cincinnati get to watch their own screen at the checkout. Each cashier in Thriftway's 23 stores uses a Windows-based, 486-based NCR Corp. POS device equipped with a 9-in. VGA color monitor. Customers watch a 7-in. monochrome screen.

According to Thomas P. Robbins, Thriftway's vice president of operations, multimedia at the checkout serves a dual purpose: It can lure customers with promotional or informational materials related to their purchases, and it can be used as a training environment for sales associates.

The drug chain chose a POS application from Stores Automated Systems, Inc. in Bristol, Pa.

Continued from page 28

mining application, assumes relationships between elements," Kilcourse said.

Just two benefits of the \$1.33 million system: It can support up to 3,000 requests daily (a tenfold increase over the DB2 system), and it has reduced from 12 hours to less than six the time it takes Longs Drug to conduct overnight batch cycles.

Kilcourse declined to specify the business impact of his DSS setup. However, he said Longs Drug has increased inventory turns, reduced inventory investments and generally streamlined its procurement and planning operations as a result of being able to examine data sooner, after it has been gathered from the stores.

Longs Drug's experience is instructive, too, because the company has moved its DSS model to other applications (pharmacy, customer information) and has linked the DSS sales tracking system to other applications, such as its host-based auto-replenishment system for store inventory.

NOT READY TO TOSS THE MAINFRAME

Like Longs Drug, Federated's mainframe will remain. Its three-tier architecture will consist of Microsoft Corp. Windows NT clients; Windows NT/SQL Server 6 application servers running on multiprocessor servers from Compaq Computer Corp.; and a mix of database servers running everything from Oracle Corp.'s Oracle to MVS DB2 and CICS running on IBM hosts.

Why the mainframes?

"Look, the question is one of partitioning applications," Guzman said. "Some belong on batch [systems], some are better suited to a PC on a desktop." To help accomplish this, Federated is using Seer Technologies, Inc.'s application development tool kit, which supports application logic partitioning.

Front-ending mainframes with data warehouses, however, may be only a stopgap measure. Success will come to those retailers that make a broad commitment to client/server, observers said.

Tom Freeman, editor and publisher of "Retail Systems Alert," a newsletter based in Boston, argued that the biggest payoffs await those retailers that choose to embrace client/server as their base enterprise architecture. "The ones who will leverage this technology are looking at the entire pipeline and realizing that batch processing doesn't allow for pipeline management," Freeman said.

Put another way, shopkeepers of old enjoyed a single, real-time view of their stores and their customers. Modern, distributed retailers will rely increasingly on client/ server and real-time networks as a way to replicate this powerful, successful business model.

Booker is Computerworld's senior editor, Networking, in the Chicago office.

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JUDITH HURWITZ

Hurwitz is president of Hurwitz Consulting Group, Inc., a Newton, Mass., consulting, publishing and research firm specializing in development tools, client/ server infrastructure and systems management. If this is an area for which you have concerns and ideas, contact her. Her group is interested in helping vendors focus on this yet undefined space. You can reach Hurwitz via the Internet at jhurwitz-@world.std.com.

unsettling have some news. Just when you thought you had memorized all of the various types of client/server computing and had figured out the names of the three tools you wanted to explore, there is something else you have to pay attention to in the client/server space: applications management.

What is applications management? In brief, it is part of client/server systems management but with a different twist.

TWICE. Applications management focuses on the actual application code that value-added resellers, independent software vendors and internal developers create to run business processes. Therefore, applications management keeps track of what is happening to the accounting, manufacturing and human resources applications that run the busi-

Clearly, put in this perspective, applications management will be one of the most critical pieces of your client/server infrastructure. Therefore, when you're selecting software partners, ask them how they intend to address this area. Don't be surprised, however, if fewer than half of the vendors you talk to even understand the issue of applications management. This is a danger sign and one that should make you think twice about which vendors to partner with.

If a client/server tools vendor answers that it already provides applications management by supporting SNMP, the vendor is not addressing the issue.

A protocol such as SNMP is a low-level protocol for managing physical devices in a networked environment. This is not a helpful answer and demonstrates that the vendor is lost in space.

I have run into a few vendors that under-

DON'T BE SURPRISED IF FEWER THAN HALF OF THE VENDORS YOU TALK TO EVEN UNDERSTAND THE ISSUE OF APPLICATIONS MANAGEMENT. THIS SHOULD **MAKE YOU THINK**

stand the concept of applications management. These include the vendors of vertical packaged applications such as SAP America and more horizontally focused suppliers such as Open Environments Corp. Database vendors such as Sybase, Informix, Oracle and Computer Associates with CA-Ingres also understand this problem and are preparing to address it.

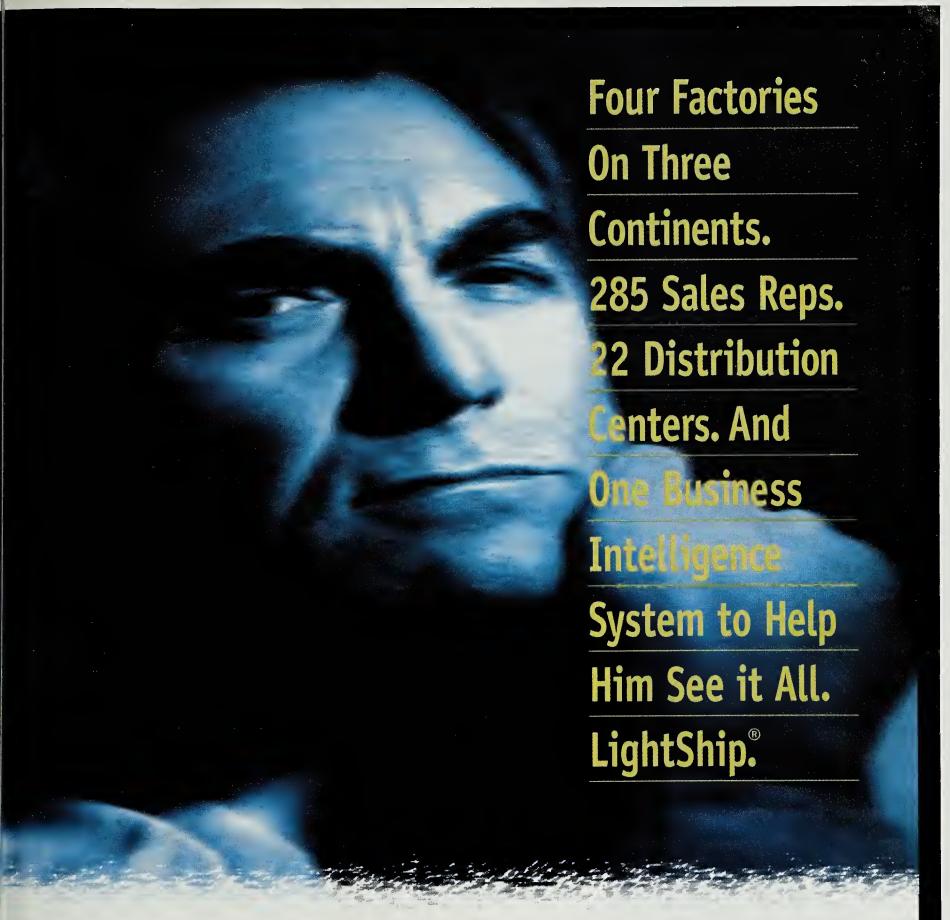
However, two big challenges remain: First, users from organizations with clout (meaning cash to spend on tools) must be pre-

pared to understand the issue and hold potential vendors responsible to provide such functionality.

Second, users must insist that tools vendors, database vendors, middleware vendors and vertical application vendors focus on providing standard APIs. In the space of applications management, it is critical for a variety of applications and components that provide the underlying architecture for client/server to be able to work together so they can be uniformly managed.

Should you go ahead and move to client/ server without applications management? Yes and no. Yes, because it is important to begin to build more flexible and scalable applications that meet business objectives today. No, because you want to make sure that the vendors you select are working on the problem and are ready to provide an applications management framework that will be ready when applications management becomes the next craze.

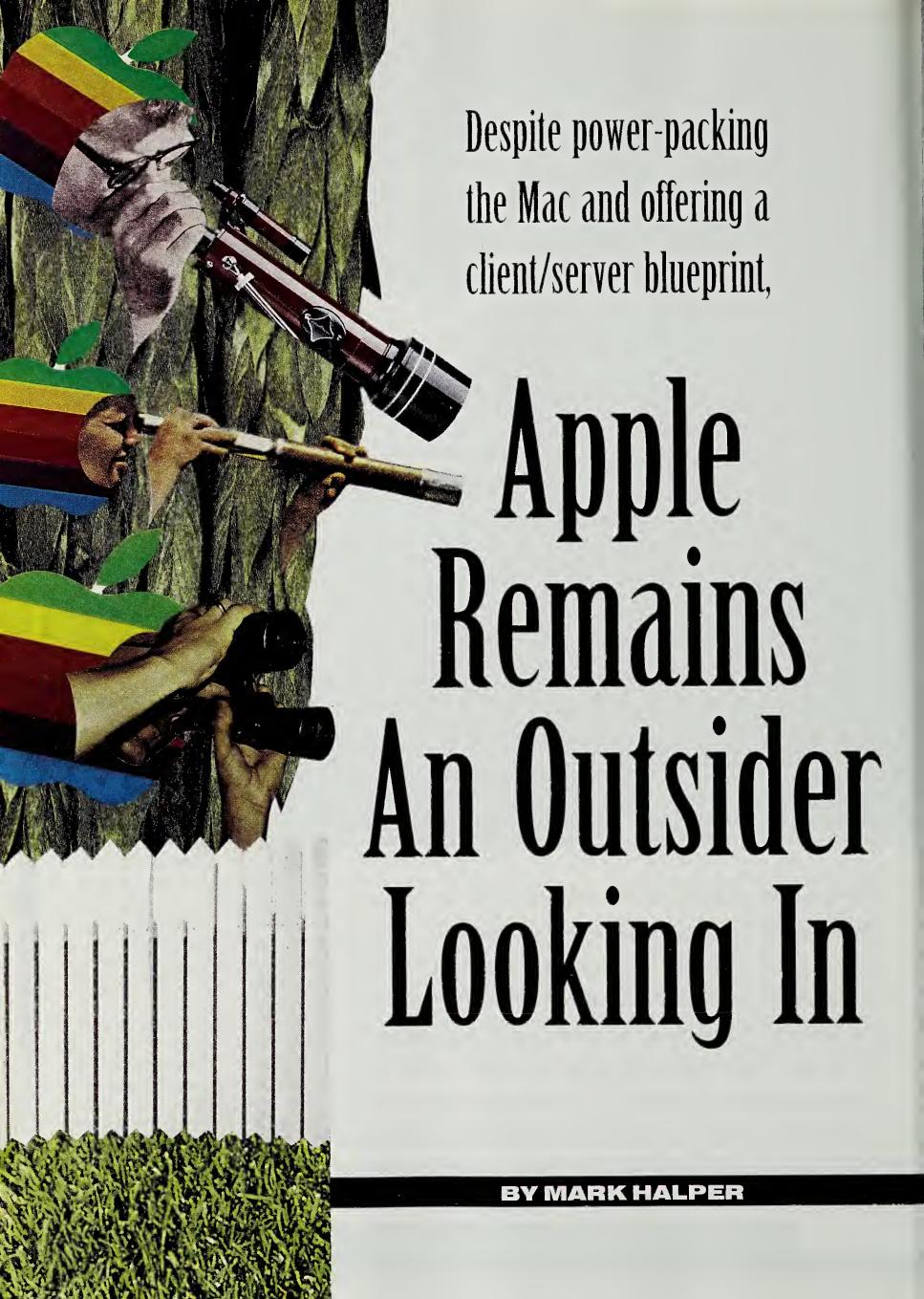
Client/server computing offers vast potential for increased productivity and manageability. If you don't understand the management issues, there is little point in moving forward. "If you can't manage it, don't build it" is the catchphrase of the day.



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ith 350 Macintosh computers spread across 24 Bay Area offices, Cornish & Carey Residential Real Estate information systems manager Bob Duffy ardently advocates corporate use of the Apple Computer, Inc. Macintosh.

The Palo Alto, Calif.-based realtor uses PowerPC- and 680x0-based Macintoshes for everything from personal productivity to storing and accessing each office's individual listings. Yet Duffy has decided to install Windows machines in those offices to access a central multiple listing program running over Microsoft Corp.'s Windows NT on a Sybase, Inc. database.

The short reason why, according to Duffy, is that Cornish & Carey's multiple listing supplier, San Jose, Calif.-based R. E. InfoLink, was unable to provide a Macintosh front end that could reliably access the back-end database. And as the area's largest independent realtor battling national chains such as Coldwell Banker Real Estate Group, Inc. and Century 21 Real Estate Corp., Cornish & Carey couldn't afford to wait.

Duffy's paradox is a common, albeit changing, one among corporate Macintosh users. While many have long-standing loyalty to the Macintosh and its hallmark ease of use, some are de-emphasizing it in client/server environments, which historically have lacked development tools and third-party integration services relative to the pervasive Windows world.

"Simply making the Mac a client to NT servers is easy," Duffy said. "But as far as client/server software goes, you're limited. Was your database developed with the Mac in mind? If it wasn't, you'll have difficulty getting into it."

"I admit, a lot of us like the technology," added Steve Cooper, director of corporate information systems at Indianapolis-based Eli Lilly and Co., which, with about 9,000 Macintoshes, is one of Apple's largest corporate shops. "But our new development will primarily be for PCs, not for Macs, because that's the direction the world is going. There's a much larger percentage of development going on there."

Apple recognizes that it has historically lacked the backing of big-name third parties but says that situation is rapidly becoming a thing of the past. "We've been working hard with the third parties," said Brian Gentile, manager of solutions development at Apple USA, Apple's U.S. sales and marketing arm.

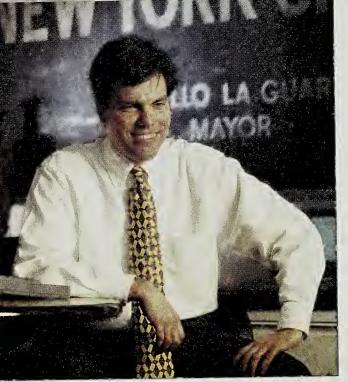
In fact, three years ago, Apple laid a solid foundation for Macintosh deployment in client/server schemes when it released its massive Virtually Integrated Technical Architecture Lifecycle (VITAL) blueprint. The 1,000-page document mapped out ways for users to switch from traditional host-down methods to desktop-centric approaches using interfaces available in Apple's Data Access Language and Data Access Manager to bridge dissimilar environments.

"We've built a lot of our architecture around VITAL," Cooper said.
"It is still a powerful architectural framework for tying things together from legacy to desktop to wires to servers."

And there is other good news for Apple client/server users, who point out that Apple is making impressive strides in cross-platform support. Apple

Please turn to next page





Carson's John Papa is an avid Macintosh fan

Continued from page 35

recently began offering a 486 add-in card that turns a Macintosh into a Windows machine, although memory requirements are stiff. And there is no shortage of enthusiasts for Component Integration Laboratories' OpenDoc document management technology, which Apple and others endorse in competition against Microsoft's OLE technology.

ike OLE, which is now available, OpenDoc — once it ships later this year — is intended to allow users to pull elements of various applications into one.

applications into one.

"Apple is working with a wide variety of vendors, whereas Microsoft seems to be fighting those vendors," observed Ted Benham, general manager of information technology at the Armco Advanced Material Co. division of Pittsburgh-based steel maker Armco, Inc. "What I see with OpenDoc, you'll be able to pick and choose better than you can with OLE."

But while VITAL remains a hit and Windows coexistence grows more plausible, many Apple users are running out of patience over what has been a dearth of big-name client/server development tools. Furthermore, Macintosh operating system advancements that should improve multitasking capabilities are at least a year and a half away, as major improvements are not planned until the release of Copland in late 1996.

Still, if you can't easily build Macintosh applications, there will be no Apple programs with which to exchange data. "There's no Visual Basic, there's no Microsoft Access, and there's no PowerBuilder," Benham said. (A long-awaited version of PowerSoft's PowerBuilder for the Macintosh is slated to ship by year's end.)

Benham's group operates about 900 Macintoshes and about 100 PCs in a mixed environment tied into Macintosh servers, Digital Equipment Corp. VAXs and IBM mainframes. But the lack of tools, as well as the difficulty Benham has had finding Pittsburgh-area expertise in Macintosh software and integration, has the company considering a shift in its desktop preference from Macintosh to Windows. Benham said he is "more open to change than I was a year ago."

Change has already come at longtime Apple user DHL Airways, Inc., which recently decided to implement Windows clients on a new Hewlett-Packard Co. HP 9000-based Unix customer support client/server system in Tempe, Ariz. The availability of a Windows version of PowerBuilder played heavily into that decision, according to Brian Comnes, information center manager.

Although DHL's 500 corporate desktops in Redwood City, Calif., are split evenly between Macintoshes and PCs running productivity software, the company is "probably going to standardize on Windows over time" as it adds more distributed programs to its enterprise computing mix, Comnes said.

Macintosh users speak well of lesser-known database and tools vendors, including Cupertino, Califbased ACI US, Inc. and its 4th Dimension line of databases and tools; Foster City, Calif.-based Blyth Software, Inc.'s front-end tools; and Farmington Hills, Mich.-based Compuware Corp.'s Uniface tools. Sound as those products may be, they are an off-Broadway act in a world in which users are focusing much of their attention on center stage stars such as

Oracle Corp., Sybase, Informix Software, Inc. and Microsoft.

Little of this is news to Apple, which believes third-party development support is starting to turn the corner as well-known vendors such as Redwood City, Calif.-based database giant Oracle step up their commitment to the Macintosh platform. "We've had the Unifaces, the Blyths, the ACIs, but we just haven't had the household names," Gentile said.

Oracle appears to have given equal footing to Macintosh and Windows platforms with its forthcoming object development tool, Oracle Power Objects. Macintosh and Windows versions are due concurrently this month, priced at \$1,999 in the U.S.

"Our intention is to have Mac and Windows on a parity," said Marc Benioff, Oracle's client/server division vice president. But unfortunately for Apple users, Oracle's parity does not apply to all Oracle products. Its new desktop and workgroup version of its popular database program, called Oracle Workgroup/2000, has been shipping in a Windows version since early this year. A version for the significantly smaller Macintosh market is not due until later this year.

eanwhile, other leading database companies have stated Macintosh commitments ranging from nonexistent to lukewarm. Informix doesn't plan to offer products for the Macintosh, while Gupta Corp. plans to ship an SQL tool for the Macintosh in the third quarter of this year, spokeswomen for both Menlo Park, Calif., companies said.

Apple users are hoping they will benefit from a reciprocal turn of events in the database industry. Just as some of the leading Unix and Windows tools and database makers are showing more interest in the Macintosh, ACI is planning to offer in July a Windows version of its 4th Dimension product that Macintosh shops today use to build business-critical client/server applications.

John Papa, an avid Apple user and a partner at New York-based financial services firm The Carson Group, expects to use the tool, called Passport, to develop a new Windows version of Carson's Hero application. Hero provides detailed financial portfolio data on a company's investors. Carson's existing Windows version was developed using Microsoft's Visual Basic, and according to Papa, it is not as feature-rich as Carson's Macintosh version, which was developed with Passport.

Despite the tools shortage, Papa remains a Macintosh client/server enthusiast. His company uses about 50 Macintoshes to access a Sybase database residing on a Sun Microsystems, Inc. SPARC 1000 server and a 4th Dimension database residing on a Macintosh. Papa said he hopes Apple's introduction later this year of more powerful Macintoshes based on a next-generation PowerPC chip

and incorporating the Peripheral Component Interconnect bus will enable Carson to deploy Macintoshes instead of the more expensive Sun boxes.

Still, Apple is not expected to win many server sales until it drops its pricing. "As a general rule, you pay \$1,000 premium" vs. comparable Pentium and 486 models, according to Bruce Lupatkin, director of research at Hambrecht & Quist, Inc. in San Francisco.

urther aiding the cause will be the scheduled late 1996 release of Apple's next-generation operating system, dubbed Copland, which should further improve the Macintosh's multitasking capabilities (Apple added a feature called thread manager with the introduction of 7.5 last fall).

But even then, the Mac OS will

fall short of full, preemptive multitasking. Walt Disney Co., which uses about 1,700 Macintoshes and 2,300 PCs tied into Unix servers within its film and video arm, is still looking forward to Copland's improved dynamic memory allocation. Such an advance would minimize the need to set memory parameters for various software applications and would thereby improve multitasking, according to Steve Brooks, director of IS at the Burbank, Calif., company.

And while Apple's top-notch reputation as a supplier of multimedia graphics and conferencing may help win departmental sales, users expect it to have little immediate bearing on their client/server architectures. "Getting video with your E-mail and voice mail is still pretty Buck Rogers

Halper is a freelance writer in San Francisco.

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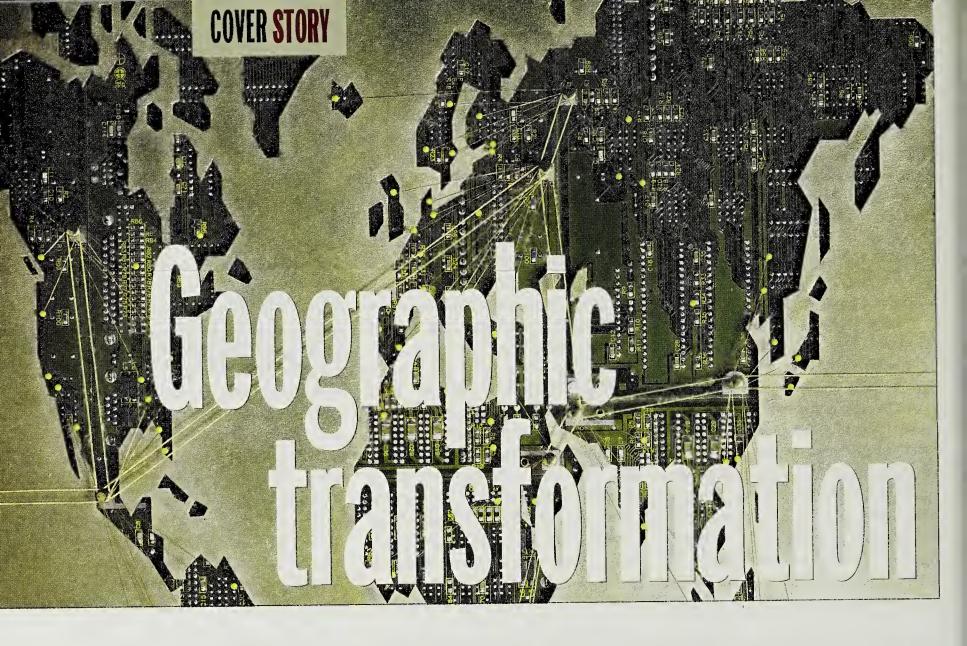
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CLIENT/SERVER CAN
TEAR DOWN GLOBAL
BOUNDARIES, BUT
CULTURAL CLASHES
AND UNPAVED
TECHNOLOGY ROADS
MAKE IT A BIG
WORLD AFTER ALL

t's late Friday morning in Tokyo. Five thousand miles away in the U.S., millions of people are settling into the previous Thursday evening's *Seinfeld* episode.

But at Sunnyvale, Calif.-based Trimble Navigation Ltd., a customer service database churns away as a phone support technician in Japan locates just the record he needs: details of a similar problem at a site in New Zealand.

Six hours later, an executive at Bass Brewers in London prepares a marketing strategy after gleaning worldwide buying pattern data from the \$7 billion beer maker's taverns and retail outlets — all from his workstation.

If only such systems existed. In reality, Bass PLC is in the planning stages of a two-year project to build a worldwide, client/server infrastructure with Microsoft Corp.'s Back-Office and Windows 95.

At Trimble, a global sales and

customer service system from Vantive Corp. is up and running for the U.S. and UK. New Zealand is close behind. But "when we bring up Japan, we'll have a 24-hour clock running," said Eberhard Waiblinger, senior systems analyst at the \$150 million provider of global positioning systems. That leaves no time to update the database with ordering and shipping information from The ASK Group, Inc.'s mainframe-based system.

Then there's language. Vantive has a kanji interface, but "there's a question as to whether [Tokyo] wants the data to be done in kanji," Waiblinger said. "We're not ready to do that."

Time and language differences are two obvious obstacles multinational companies face as they implement worldwide client/server systems. Others include the following:

- Little consistency between systems and business processes.
- Spotty support, particularly in Latin

BY MARY BRANDEL

America and smaller Asia/Pacific countries.

- Clogged networks due to unprepared infrastructures.
- Slow response time as unscalable systems grind to a halt.
- Lengthy deployments due to longdistance communications, software/ equipment unavailability and the like.

"We're not finding this an easy paradigm shift to go through," said Jeri Bender, assistant vice president of management services/technology and standards at Nestec, a unit of Nestle SA, headquartered in Vevey, Switzerland.

Indeed, for most global companies, there's more talk than action. "Of the Fortune 200, 80% are probably entertaining the idea" of global client/server systems, estimated Ron Crumpler, North American director for the SAP line at Ernst & Young. "Of that 80%, 20% have embraced it and are going forward."

But why do global client/server at all? A big reason, implementors said, is to get their arms around farflung data and make their international operating companies — even \$42.8 billion companies such as Nestle with operations in 71 countries feel, well, more local.

Nestle, for instance, is standardizing on SAP America, Inc.'s R/3 throughout Canada, the U.S. and Europe so that it can leverage the manufacturing and marketing of, say, its dark chocolate in France in another country such as Switzerland. At the same time, the system needs to cater to local tax and accounting rules.

In theory, client/server application partitioning can help protect the particulars of local business while still allowing for corporatewide standardization, said John Parkinson, a partner in the Center for Business Transformation at Ernst & Young in Las Colinas, Calif.

In other words, headquarters can centralize corporatewide applications or even mandate standard applications to be run on local servers. At the same time, operating companies can apply country-specific rules at either the client or local server level.

Sounds great, Bender says. But how many companies have that kind of design experience? "You're not just thinking what one user wants," she says. "You're thinking about what 5,000 users would want in 50 cultures and [then developing an application] that can jump to the left and right without changing the core software. There's not a lot of people who know how to do that."

Even when you do figure out design, "How do you test a global network when you don't have one?" Parkinson asked. "The first time you know it will work is when the components are in place." Even with network simulation tools, testing is complex and lengthy, he said.

And then comes the really hard part: "The operational side is the Achilles' heel in the long term," including backup, security, version control, software distribution and file integrity, said Bruce Hawthorne, president of Hawthorne Associates, Inc., a Peapack, N.J., international information systems consulting firm.

Hawthorne recounts a client that went from AS/400s worldwide to several hundred Unix machines in the space of 18 months. "It was hard enough to do in New Jersey. They finally chose to outsource support," he said.

GOING IN WITH EYES WIDE OPEN

With these difficulties in mind, some multinationals are walking cautiously into the fray.

"Do we use client/server? Yes, when it's important to use it," said John Parker, chief information officer at SmithKline Beecham Corp., a worldwide pharmaceuticals with headquarters in Philadelphia.

But you won't find SmithKline's new 100-country supply chain sys-

Here are three world-class examples of companies implementing global client/server systems. All are striving for efficiency and a strategic, worldwide view of their operations.

GLOBAL MARINE, INC.

A mainframe ouster spurred a move to client/server in the U.S., Scotland and on 28 drilling rigs. PAGE 40.

BASS PLC

To buoy its supply chain position, this UK brewer is planning a worldwide data-sharing system. PAGE 42.

NESTLE SA

This food products giant is halfway through streamlining operations with similar client/server systems in 200 operating companies. PAGE 44.

tem on a client/server platform any time soon. "Right now there is not the kind of [off-the-shelf software] we would expect to see. We also believe client/server is two to three times more expensive" than host-centric processing, he added.

With little in the way of management tools or transaction processing capability, "you've got to either build or integrate that stuff yourself," Parker said. "It also takes a higher skill level, and ongoing operation is more difficult" than on a mainframe or IBM AS/400 system.

Others, such as Allan Paterson, director of corporate information technology strategy at Bass, said the safe route may impede survival. "There's going to be a lot of pain," he said. "But we recognized in the last 12 months that we have to be leadingedge practitioners of [information technology] in our sector."

Brandel is senior editor at Computerworld Client/Server Journal.

Geophysical dislocations

GLOBAL



Houston

94 REVENUE: \$350 million

SCOPE: 12 countries

WORLDWIDE STAFF: 4,000

WORLDWIDE IS STAFF:

id you know that in Scotland, standard paper size is a 1/2 in. narrower and a 1/4-in. longer than the paper size we use here in the states?

So what, right? Well, that's the kind of attention to detail it takes to successfully roll out a global client/server system. Just ask Mike Penny, manager of microsystems at \$350 million offshore drilling firm Global Marine. Inc. in Houston.

That discrepancy caused a ruckus when Penny's group tried to implement a customwritten purchasing application for users in Lafavette, La., and Aberdeen, Scotland. Developers had to synchronize all possible paper default combinations in Windows, in Powersoft's PowerBuilder data window and in the overlay forms program from WordPerfect.

"These are purchase orders, so they had to be neat and professional. We've been having fun," Penny said.

Fun indeed. Global Marine is at the tail end of a three-year project to move its applications from an IBM mainframe to a Sun Microsystems, Inc. Sun 690 MP server running Sybase, Inc.'s Sybase 4.9 database.

The server, located at headquarters, will support 300 users in the U.S. and Scotland plus 28 drilling rigs throughout the world. The reason for the company's move was to avoid a costly mainframe upgrade.

The fun really began when Penny's group started tackling time differences for an order processing application. Which time do you use when orders are taken in Scotland but booked in Houston — six hours behind?

If you use the system, or Houston, time,

sales reports would be incorrect. If you go with the client, or Scotland, time, audit trails and batch utilities would run amok. The solution: "We consciously carry both [client and server] fields with the tables," Penny said.

Even with applications that are up and running, the company has yet to perfect tasks such as system monitoring and backups.

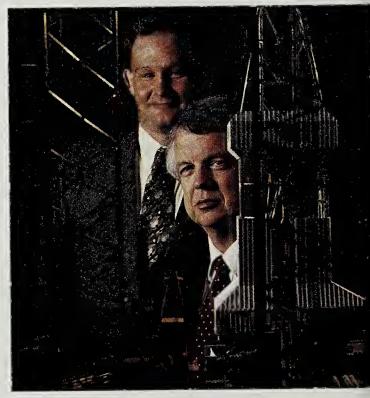
Such software concerns "are big enough in their own right in the U.S.," said Allan Frank, national partner in charge of enabling technologies at KPMG Peat Marwick in Radnor, Pa. "With a multinational rollout, there's a whole series of new problems."

Take licensing. Major software vendors are just now developing resources to help multinationals with global licensing. Not so with smaller or more vertical software suppliers. "They don't know what a software license is all about in Czechoslovakia," said Thomas Howard, senior vice president, international, at Tricord Systems, Inc., a Plymouth, Minn., server vendor.

Corporate Software, Inc. in Canton, Mass., for instance, plans to install an integrated order fulfillment system from SAP America, Inc. early next year, in part to help manage customers on a global basis.

Global Marine bypassed this by centralizing purchasing. "In [a distributed setup], the licensing would kill you," Penny said.

Please turn to page 45



Global Marine's Mike Penny and Dick Hudson: Supporting client/server on rigs in the North Sea and west coast of Africa required standardization and control

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Fermenting

BASS PLC



London

'94 REVENUE: \$7 billion

SCOPE: 60 countries

WORLDWIDE STAFF: 84,000

WORLDWIDE IS STAFF:

800 (with an additional 45 at Bass IT, a coordination and standards group)

t's a classic marketing tale. A father stops by the grocery store Friday night to pick up some diapers for the baby. "As long as I'm doing this for the kid," he figures, "I might as well reward myself with a six-pack of beer."

Sharp-eyed retailers note the pattern and place beer specials next to the diapers every Friday night to lure other parents.

But if Bass PLC has its way, by 1996 it won't be the retailer making those calls. "If the retailers are in power, we have less ability to influence products being sold into their distribution centers," said Allan Paterson, director of corporate information technology strategy at Bass. "We need to transform our understanding of the supply chain."

Transformation in this case requires data access. That's why two months ago, 12 information technology directors and senior managers at Bass devoted their quarterly meeting to the planned global rollout of a \$10 million Microsoft Corp.-based client/server system.

The goal: to create an architecture that enables radical business opportunities, such as the ability to see a complete picture of sales performance at the very separate divisions comprising the \$7 billion UK brewing giant. These include Bass Brewers (with joint ventures in Czechoslovakia and Europe), Bass Taverns (with more than 3,500 pubs), Bass Soft Drinks, Bass Leisure and Holiday Inn Worldwide (with 1,925 hotels worldwide).

Bass Brewers, for instance, could make better marketing and advertising decisions if it had instant access to sales trend data from the tavern, leisure and even hotel businesses. And Bass PLC could take that combined analysis and sell it to supermarket chains.

The planned architecture goes like this: ■ In-place divisional data warehouses based on massively parallel processing systems and IBM AS/400s and RS/6000s.

■ Corporate performance and appropriate external data consolidated at the group level on workgroup servers running Microsoft's BackOffice. From there, pertinent data will be sent to local workgroup servers, to be shared in a groupware environment.

■ All 8,000 PCs worldwide will be upgraded to Windows 95, Office 95 and Exchange.

Right now, a worldwide Microsoft Mail system does keep, say, Bass Taverns information technology director Brian Wilson in Birmingham, England, in touch with his counterpart at Holiday Inn in Atlanta.

But BackOffice and Exchange "will lead us from the mail world to the messaging world, where we have access to whatever peers and resources are out there, wherever they are," Paterson said.

And quickly. Bass expects to roll out to a small cross-section of the firm by early next year. Wide-scale deployment is planned for mid-1996. Such urgency is warranted. The beer market is in modest decline, said Les Pugh, an analyst at Salomon Brothers, Inc. in New York. Plus, a shift from pub drinking to take-home sales makes shelf management crucial.

Most leading brewers have sophisticated point-of-sale systems. But Bass considers itself "at least on par if not ahead" in terms of its data-sharing infrastructure, Paterson said.

Please turn to page 45



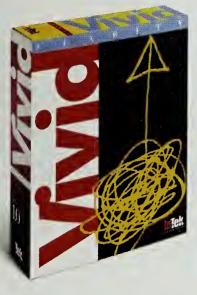
Bass' Allan Paterson: His company considers itself 'at least on par if not ahead' of leading brewers in terms of its data-sharing infrastructure plans

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Vevey, Switzerland

'94 REVENUE: \$42.8 billion

SCOPE: 71 countries

WORLDWIDE STAFF: 220,000

WORLDWIDE IS STAFF: 2,800 (150 of which work at Nestec, the technical assistance company of Nestle in Vevey)

his past April, nine U.S. cities were given another reason to indulge in chocolate. It's called Nestle European Style Chocolate Mousse Mix, and like Jerry Lewis, the French love it.

If it were the early '90s, the states might have been deprived of this chocolate experience developed by Nestle SA, the largest food processor in the world. The synergy that existed between the 200 operating companies comprising Nestle was thin at best.

"Nestle is ... more of a federated association of companies than a monolithic Procter & Gamble," said Jean Claude Dispaux, senior vice president of group information technology and logistics at Nestec, the technical assistance company of Nestle.

But 3½ years ago, the company decided to borrow a page from its competitors. "There was a concern that we were not taking advantage of our strength, size and value of our products," Dispaux said. With 20,000 products made in 494 factories around the world, "some of these could profit from sharing inventory and manufacturing operations."

The solution consisted of the following:

- Create strategic business units with global views of the enterprise.
- Standardize business processes.
- Populate the countries with similar client/ server financial, commercial, supply chain and even manufacturing systems to enable more sharing among the subsidiaries.

This large project "is consistent with Nestle's history of being a sophisticated multinational operator," said David Rabinowitz, an industry analyst at Smith Barney Shearson, Inc. in New York. Many of Nestle's competitors are likewise using technology "to bring to bear the resources of a very big company."

Nestle is just about halfway into this sixto seven-year project. But the going, as they

say, has been rough.

For one, the Nestle subsidiaries were accustomed to buying "whatever systems they wanted," said Jeri Bender, assistant vice president of management services/technology and standards at Nestec.

But for transborder systems to work, standards had to be set in methodology (Nestle chose Ernst & Young's Navigator Systems Series), operating systems (Hewlett-Packard Co.'s HP-UX, IBM's AIX and Digital Equipment Corp.'s OSF/1), databases (Oracle Corp.'s database throughout the world, with Sybase, Inc.'s in the U.S.) and client applications (supplied by Microsoft Corp.).

Encouraging 80 companies to migrate to a relatively consistent platform is proving difficult enough. Training them in the black art of client/server from different starting points and different skill bases has truly been a bear.

"Find me a [consulting] company that can give me support in Brazil and Malaysia and Indonesia," Bender said.

Nestle has two types of standards: advisory and mandatory. SAP America, Inc.'s R/3, for instance, is mandatory in Europe, the U.S. and Canada because it directly affects profitability and data-sharing.

But for reasons beyond Nestle's control, 100% standardization is impossible today. The reason: lack of worldwide support.

Continued on facing page



Nestec's Jean Claude Dispaux says Nestle has given up on cross-cultural programming teams: We found it was a Tower of Babel'

Confections

NESTLE

Continued from facing page

Even SAP has limited reach. "SAP was not present [in many Far East countries]," Dispaux said. Instead, the Asia/Pacific region will use Systems Software Associates. Inc.'s BPCS on an IBM AS/400.

A second problem is language support, particularly for double-byte character sets used for Japanese, Chinese, Thai and Korean.

Although the issue is thorny, Nestle is on the right path. It is down to 50 general ledger systems, from more than 120 eight years ago. "By the turn of the century, we'll be down to three or four," Dispaux said.

Nestle is also custom-developing strategic transborder applications. A current project is to enable one manufacturing site's SAP R/3 system (say, Nestle France) to automatically fulfill another Nestle site's inventory needs based on inventory data, sales figures and forecasts sent by the recipient's SAP R/3 system.

For such transborder systems to work, business processes must be compatible. Take calendaring: In France, months are defined by the calendar. But in the UK, a year is 13 months of four weeks each.

Developing standards, determining business requirements and testing versions of software means bringing together cross-cultural and cross-functional teams, sometimes for months at a time.

Nestle has, however, given up on cross-cultural programming teams. "We found it was a Tower of Babel," Dispaux said. "We provide project management from here and subcontract most of the code-writing."

Although it has a ways to go, Nestle executives no longer behave like "owners of separate companies," Dispaux said. And tangible benefits are apparent. After all, we've got the European Style Mousse Mix. Z

Explorations

GLOBAL MARINE

Continued from page 40

To distribute software, a quality assurance analyst uses a version control system and places applications in a common area on the headquarters LAN for remote LAN administrators.

Standardizing on Compag Computer Corp. PCs also helps Global Marine bypass country discrepancies among hardware.

Such control is understandable, considering Scotland is the nearest information systems support site for rigs located 50 miles off the shores of Singapore and Australia. It's even more understandable when you learn Global Marine's next plan: preventive maintenance client/server applications on the rigs themselves.

Currently, rig hands send paperbased maintenance summaries to headquarters via regular mail.

By early next year, that will change. The rigs will capture the data on Sybase NetWare Loadable Module databases on Novell. Inc. Net-Ware LANs. To get data back to headquarters, a real-time link "will never be cost-effective," Penny said. Rig hands will use an electronic-mail attachment "to suck the data up into the database in Houston," he said.

Still, it's an improvement. Transfers should take 15 minutes, not five or six hours, said Dick Hudson, vice president of MIS at Global Marine.

Floppy disks flown in on helicopters may have to suffice for the West African rigs, which depend on satellite rather than cellular technology. Satellite is "expensive and really slow," Penny said.

"A large proportion of the world disenfranchised because they don't have systems with the reliability you'd expect in the U.S. and Europe," said John Parkinson, a partner in the Center for Business Transformation at Ernst & Young in Las Colinas, Calif. Z

New formula

BASS

Continued from page 42

One scary aspect is that nobody — particularly not Microsoft — fully comprehends how to tackle a project of such epic proportions, especially integrating the components on an enterprisewide basis, Paterson said.

"We're making a major commitment to Microsoft," he said. "But they've got to meet us halfway with a business and support model that meets the needs of major corporations."

For installation and implementation, Bass will supplement internal staffers with help from the new breed of software providers, such as AT&T Global Information Solutions, Ing. C. Olivetti & Co. and Unisys Corp.

While large vendors also offer systems management and software distribution services. Paterson is looking instead toward Microsoft's Systems Management Server. "Systems management of distributed servers is not rugged right now," he said. "Until [it is], my argument would be to put as many servers in consolidated places as we can but split the processing so that it is physically or logically discrete."

But the type of support global firms require often extends beyond the basic and into the treacherous.

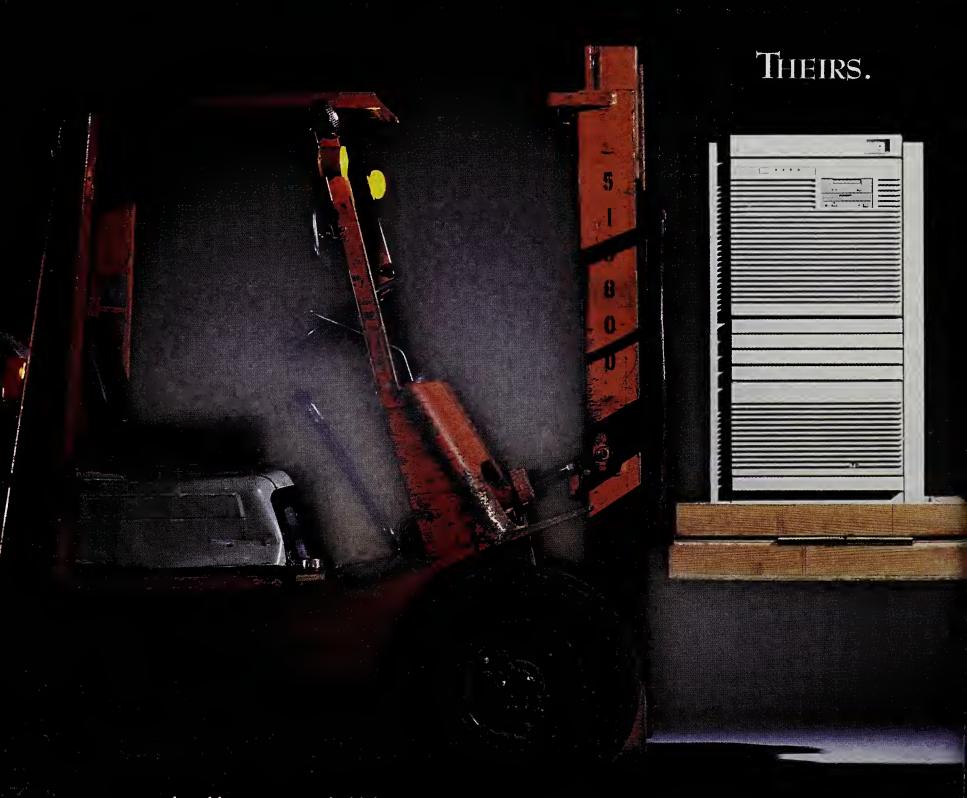
"Where a lot of service issues are global, service politics are local," said Bob Johnson, software services research director at Dataguest Worldwide Services Group in Framingham. Mass.

Bass faced heavy politics five years ago when it started to move toward a standardized technology architecture.

"We went through a lot of pain and grief for two and a half years," Paterson said.

But the implementation of a worldwide mail strategy has been a major unifying factor.

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New Age Interfaces

BY KIM S. NASH

oday's graphical applications are darn good at letting PC users get at and fiddle with data. So how come end-user productivity isn't through the corporate roof by now?

One answer lies in questioning the obvious: the Windows and Macintosh interfaces found on the majority of computers today.

According to several experts, building applications to fit Windows standards doesn't automatically produce a highly usable piece of software. Indeed, better results come from going off the grid and embarking on a well-defined and sometimes arduous up-front design process, said Rick Poston, human factors team lead at IBM's AIX division in Austin, Texas.

In fact, Windows and Macintosh displays may have stunted the imaginations of some interface designers, according to several observers. Windows is so prevalent that "it's hard to imagine outside of it," said Craig Lashmet, manager of the advanced technologies group at Chicago consultancy Grant Thornton LLP.

And with Windows applications everywhere, it can be hard to eke out much of a competitive advantage from them, Lashmet said.

Such questioning has sent some forward-thinking user companies into the laboratory — the usability laboratory, that is. Some build elaborate in-house labs, complete with PCs, workstations and development tools. But many turn to consultants, such as Grant Thornton's lab in Chicago.

In search of productivity, some companies are testing imaginative new GUIs



Many also employ so-called human factors experts, who are specially trained and often certified by the Board of Certification in Professional Ergonomics, to make computers and software easier for flesh-and-blood people to use.

A large Chicago-area retailer signed on Grant Thornton last year to learn how to "think beyond the confines of Windows," Lashmet said.

The retailer, like most user companies embracing structured usability concepts, did not want to be named for fear of tipping off competitors about what it hopes will be pivotal business advantages.

The company is striving to make customer service data as accessible to users as possible. One of its goals, for example, is to make information never more than one mouse click away, Lashmet said.

Such single-click thinking can lead to innovation, he said. Take active icons: Instead of building an application where all icons continuously sit on a screen, Grant Thornton is helping the retailer create icons that pop up only under certain circumstances. A wrench, for example, will appear when system maintenance needs to be scheduled.

Interfaces in the not-so-distant future are expected to carry more of these active icons, along with colorcoded data, pictures and far fewer row-and-column-style constructs because the human eye can pick up information faster than fingers can type and click.

Some skeptics might doubt that a five-second savings of meander time on a single screen in an application means much. But Poston painted this picture:

Assume that 200 workers, each paid \$15 an hour, access that screen once every 10 minutes during a typical day. The company ends up paying \$1 per day per worker for that five seconds of lost screen-navigation time. Over the course of a year (with no vacation or holiday time), say goodbye to approximately \$52,000. And that is just for a single screen in a single application.

Like most good things in life, usability doesn't come cheap. Good human factors consultants earn anywhere from \$150 to \$250 or more an hour. Beyond that, a single test session where people sit down and bang away on a new application can cost \$15,000 or more, Poston said. Z

Nash is Computerworld's senior editor, Databases, in Burlingame, Calif.



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UNISYS' ALAN LUTZ IS COUNTING ON REJUVENATED HARDWARE, CUTTING-EDGE DEVELOPMENT TOOLS AND INTEGRATION SERVICES TO PROPEL HIS COMPANY INTO CLIENT/SERVER'S PROMISED LAND

WANTED: Radical Reinvention

lan G. Lutz joined Unisys Corp. a year ago, after heading the public networks group at Northern Telecom Ltd. and running his own consulting company. His challenge

as president of the computer systems group is to transform the old-school mainframer into a New Age client/server player. This past

year, Lutz has reorganized the division, cut expenses and worked to improve the company's image. Unisys had a disappointing year in 1994. Revenue dropped from \$7.74 billion to \$7.4 billion, and operating income fell from \$361.6 million to \$241.3 million. However, first-quarter revenue rose from \$1.3 billion to \$1.4 billion, and Unisys turned a \$44.6 million profit. The company claims it is poised for a profitable 1995.

CSJ Unisys has been known as a mainframe company, and the world is moving in another direction. What is your strategy to move customers to client/server?

LUTZ When I take a look at what exists now, mainframes are not dead. It still is a reasonable business [for Unisys], although declining. The key there, to give us time to do the other things, is to manage the gross margins of that business.

Part of the responsibility of the team running enterprise servers is to manage the gross margins so that I've got the financial wherewithal to do expansion in those areas that will garner for me new customers and move me into marketplaces which are growing rather than declining.

CSJ So, that's client/server.

LUTZ When I talk to customers, some people think client/server is great, some people are scared to death of it.

The general trend was, "If I've got enterprise servers now and I'm rightsizing, one of my main problems is transition. How do I actually move these legacy systems, which don't seem to break but for which I've got proprietary databases and proprietary applications, to a more open environment which is less robust, more network-oriented?"

And so the right thing for Unisys to do in

lots of segments is to surround its own mainframes with its own Unix servers rather than allow somebody else to do it.

Quite honestly, one of the reasons Unisys lags on reputa-

tion in client/server is because it's two years late introducing its own product line. But I've got my own product line now, which is a substantive strategic change.

CSJ How do you set yourself apart from all the other people doing client/server?

LUTZ The reality is going to turn out to be that we'll compete on customer solutions.

We created Usoft [Unisys' client/server application tools subsidiary] to give us an object-oriented development environment, and

BY NEAL WEINBERG

we're building applications and causing others to build applications specifically for corporate clients. And we use that as the underpinning for selling Unisys Unix-based solutions.

CSJ You're basically starting with your own customers and moving out from there into industries such as banking, finance, government and telecommunications. Can Unisys be successful if it stays only within its installed base?

LUTZ I don't think so. One of the key indicators that I use to measure the health of the business is the number of new customers per month.

CSJ How's that going?

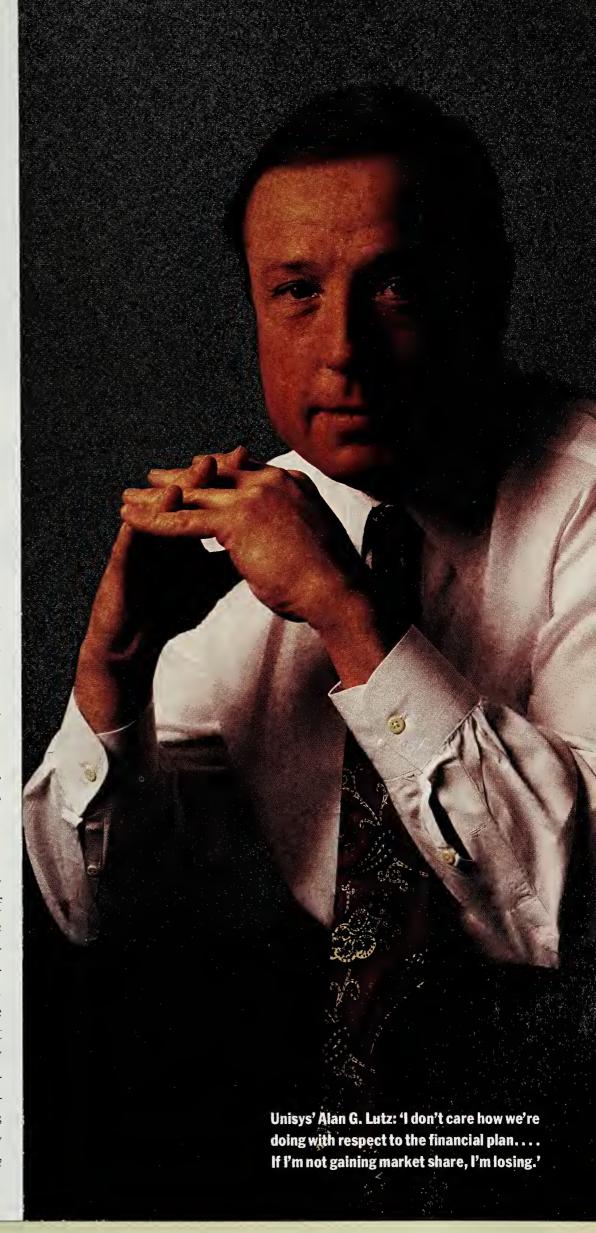
LUTZ I'm an impatient son of a bitch, so I don't know that it will ever be acceptable, but it's growing at double digits per month.

CSJ Describe Unisys' client/server battle plan.

LUTZ You've got lots of different kinds of warfare strategies, and some are defensive gross margins and enterprise servers are defensive, surrounding our own mainframes with Unix is defensive. Usoft to take you into another application is offensive; parallel [processing is absolutely offensive.

CSJ How does the push into client/server tie into the company's aggressive efforts to become a top professional services provider?

LUTZ There are two primary growth areas: client/server and information services. How they relate is that Unisys is in the business of information management. We improve the profitability of customers' businesses - improve the market share of customers' businesses — through information technology. Part of that is consulting services, but we think the differentiator they have is that they're close to the technology piece. They don't have to pick technology out of a shopping cart. It makes [Unisys' Worldwide Information Services] more credible, and it gives me early warning insights into what the early Please turn to next page





LUTZ SAYS, "Some people are scared to death of" client/server.

Continued from page 51 adopter population wants.

CSJ What attracted you to Unisys, a company that has clearly struggled over the past few years?

LUTZ [Chairman] Jim [Unruh] talked to me about being one of three or four people directing the fortunes of Unisys Corp. during its transition. Jim characterized this place as a skyscraper going up that's only half completed. It's a real challenge to be one of three or four people who are going to complete the construction.

CSJ What were your first impressions?

LUTZ The impressions that came forward were, frankly, that I had some brilliant people working for me, which pleased me. But one of the things I found was what appeared to be replications throughout the place.

We were organized in autonomous silos. There was an A Series organization called the system products group. There was a 2200 organization called the system technology group. There was a Unix group called client/server. And when I walked around I found the same thing being done slightly differently in all three.

CSJ So what did you do about it?

LUTZ We found we could make a very substantial reduction in R&D expense and have no impact at all on customer deliverables by eliminating a lot of replication and invoking a simple little mandate that said, "Try not to do the same thing over again if your colleague has done it."

CSJ One of the images that Unisys has is that it's an old-line, traditional, not very hot, not very aggressive company. Did you find that to be true?

LUTZ What I found was a lot of people who came close to bankruptcy and scared the hell out of themselves. In talks I give to my management team right now, the biggest thing to overcome, I would say, is their reluctance to believe that they actually can do it.

CSJ How do you overcome that?

LUTZ Give me a couple of good quarters, and I think there will be a very significant groundswell of morale and opinions. I can give you pockets where it's truly alive and dynamic and as electrifying as anything I've seen in the industry. Our parallel processing program is one, Usoft is another. If I could bottle that kind of spirit and send it around....

CSJ How far along on the road to recovery is Unisys?

LUTZ I no longer have any product problems. I'm working on sales issues and distribution issues. My effectiveness at solving those problems is the gate to volume sales. Right now, because the path has been so poor, the year-over-year comparisons are great.

CSJ So how do you measure success?

LUTZ I don't care how we're doing with respect to the financial plan or how we're comparing year over year. I want to know market share against HP, Sun, IBM and AT&T. If I'm not gaining market share, I'm losing.

CSJ And are you gaining market share?

LUTZ I think I'm making yards, but it's too early to tell if I'm making yards fast enough to be gaining [market] share. I want to grow faster than the Unix server market is growing because that means I'm taking market share away from other people.

CSJ You recently told the Unisys user group that you're so committed to customer satisfaction, you have a certain inscription in mind for your tombstone. What would that be?

LUTZ The dopiest thing in the world to do is to lose a customer you already had.

Weinberg is a Computerworld senior writer.

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BY MARY BRANDEL

t was going to be wonderful. No more placing phone calls and issuing reports. If a controller at The Coastal Corp. wanted to get receivables and payables for a national customer, he would simply issue a query from his workstation, cutting across all eight major lines of the firm's \$10 billion energy business.

The mechanism behind this simplicity was to be a large Unix application server in Houston running the PeopleSoft, Inc. client/ server financials suite. Data would stream over a private high-speed wide-area network to Novell, Inc. file servers at Coastal businesses across the country.

But it wasn't to be. At least not yet.

"It's difficult in a large company to sell a several-million-dollar investment for new financial systems," said Kathy Lennon, director of corporate, exploration and production systems at Coastal.

Perhaps in three years, Coastal will have a corporatewide, client/server financial system, but it will be phased in. In the meantime, sites that really need new systems have gotten them.

At Coastal's Detroit subsidiary, a change in the market required a new receivables and billing system to handle shorter-term contracts for more customers. And a re-engineering plan in Colorado Springs justified a new project costing system. Both now have contracts with PeopleSoft.

So is Coastal the only firm left in the U.S. that's not shelling out millions for integrated, client/ server financial applications?

You might think so. A recent study by Deloitte & Touche showed that 64% of 221 large companies plan to buy integrated client/server financial applications in the next two years.

And no wonder. The accounting function just ain't what it used to be. "There is an expectation for us to become more businessknowledgeable. And as an offshoot to that, there's a greater demand for access to information," said Mary Lou Dymski, chief financial officer of Corporate Software. Inc. in Norwood, Mass.

LOSE THE **GREEN VISOR**

Senior finance professionals were asked to name the most significant new responsibility assumed by their departments in the next two years

PERCENTAGE OF SITES

Improve the timing/availability of financial information	30%
Improve integration of financial and nonfinancial data	27%
Improve financial services to operations managers	16%
Other	27%

BASE: 102 U.S. COMPANIES WITH **REVENUES OF \$250 MILLION** AND ABOVE

Source: International Data Corp., Framingham, Mass.

But older systems, often built in stovepipe fashion, impede the need to dig into new areas such as measuring the time it takes to fill an order. "That's the challenge: to go off the books they've been keeping for the last 200 years," said Frank Poremski, director of international financial services at USG Corp., a \$2.5 billion Chicago maker of building materials.

Such changes are a big reason why the new client/server systems are so appealing: They boast far superior analysis as well as drill-down, reporting, consolidation and what-if tools.

In most cases, the graphical user interfaces (GUI) are easy enough for accountants or line managers to do what they need to when they want to, without depending on information systems.

Furthermore, it's easy to see how better-integrated financial modules will come into play. "Typically, you'd go to accounts payable for one set of data, general ledger for another," said Shannon Ramsey, accounting systems manager at Diamond-Shamrock Corp. in San Antonio. With a financial suite from Lawson Software, Inc. in Minneapolis, "there will be one version of the truth," Ramsey said.

Integrating nonfinancial modules is the next step. In fact, consultants say this combination of information will build the storehouses of the most strategic information a company can have.

That is the two-year plan at The Signature Group, a Montgomery Ward subsidiary that is betatesting Hyperion Software Corp.'s new general ledger and accounts payable applications. "A lot more of [the financial data] will be tied in with the other systems so that you can get a different take on the information," said Bill Weyrich, accounting systems manager at the financial services firm.

What if you needed to know the average premium paid per insurance policy? Today, "someone would have to format statistical information and put it into the general ledger," Weyrich said. But as more of Signature's systems move to client/server, "it will be easier

Please turn to next page

Continued from page 55 to tie the two [statistics] together."

But Signature is typical of all but the very largest companies: Such a system is part of a longer-term — not a here and now - strategy.

In fact, up-and-running client/ server financial systems represent a fraction of systems sold, said Clare Gillan, an analyst at International Data Corp. in Framingham, Mass. On the product side, "the market is far from maturity," she said.

You can divide the market into two groups, according to Forrester Research, Inc. in Cambridge, Mass. The first group, including SAP America, Inc., Baan International, Inc. and Computer Associates International, Inc., rearchitected its legacy code with a semblance of client/server technology. In terms of business rules, they are the same as the firms' former host/terminal applications, said Bobby Cameron, an analyst at Forrester.

The second group, including PeopleSoft, Dun & Bradstreet Software, Oracle Corp., Hyperion and The Dodge Group, built from scratch. "These guys maximize [client/server] technology, but they don't always have the functionality" of the former group, Cameron said.

In short, no product has it all, whether it's database portability, de facto standard tools, support for stored procedures, sharp GUIs, three-tier architectures, thin or fat

DISTRIBUTING THE WEALTH

Client/server is the target platform for 64% of new core financial applications planned for the next two years

> PERCENTAGE PLANNED FOR EACH PLATFORM

TOTAL	
Client/Server	64%
Mainframe	18%
Midrange	19%
ACCOUNTING	
Client/Server	61%
Mainframe	18%
Midrange	21%
PROCUREMENT	
Client/Server	62 %
Mainframe	22%
Midrange	16%
REPORTING	
Client/Server	71%
Mainframe	12%
Midrange	17%

Source: Deloitte & Touche, New York Hyperion Software Corp., Stamford, Conn.

clients, layered software, robust performance, full integrated suites or sophisticated financial functionality.

BASE: 221 LARGE COMPANIES

USG's Poremski, who is betatesting Hyperion's new general ledger and accounts payable systems, provides a good example of the tradeoffs. Hyperion today is offered on just Sybase, Inc., which was "a bit of a struggle because we're running

Oracle elsewhere," he said.

But Poremski said he is a fan of Hyperion's approach to application integration. "Hyperion realizes that corporate America isn't going to migrate from all their old systems," he said. "They've provided a tool kit that will allow you to move information from other systems into their general ledger."

As evidenced by the popularity of SAP, many people disagree. But over time, this particular debate will become less of an issue. Most analysts see published application programming interfaces as the wave of the future (see story below).

The future raises many other questions, including whether the CFO will have much say in the final technology decision. "The drivers are order management and distribution, with financial as the drag-along," said Scott Kaufman, managing partner in charge of the technology knowledge organization at Price Waterhouse in St. Louis.

But the road ahead is clearly client/server. Just ask John Parker, chief information officer at Smith-Kline Beecham Corp., an international pharmaceuticals firm. The company's next generation of backbone systems will be client/server. "But we're not going to drop things that work for new technology," Parker said.

Brandel is senior editor of Computerworld Client/Server Journal.

HAPPY CAMPERS

f you're reasonably satisfied with your financial applications but need better data access, a wholesale move to client/ server may not be necessary.

Some companies very successfully give users reporting tools to query mainframe data or data downloaded to decision-support systems on the LAN, according to Bobby Cameron, an analyst at Forrester Research. Hyperion, PeopleSoft and D&B Software all sell such tools.

In fact, Forrester divides users into three camps: incrementalists (just described), one-time transformers and reengineers. One-time transformers, Cameron said, need to install new applications fast because "their business model changed or the market erupted." These companies, which make up 65% of buyers, would likely buy integrated systems such as those offered by SAP, he said.

It's the re-engineers who can benefit most from cutting-edge client/server technology. Just a small percentage today (10%), this group may explode to 50% by

the year 2000, Cameron said.

A high priority for this group is a process-based design, he said. Baan, CA and D&B Software built their engines around a data and process model that allows users to make changes without affecting other parts of the system. In others, "the processes are all interconnected, and the data is, too. You can't encapsulate the pieces." Cameron said.

Workflow is starting to appear in other systems, but in most cases, "the vendor has wrapped workflow around its application," Cameron said.

When Less Means More

BY THOMAS HOFFMAN

hen data warehousing first came into vogue a few years ago, the prevailing wisdom was that information systems groups would be able to off-load gobs of legacy data from host environments onto client/ server networks.

Instead, many companies are finding that data warehousing continues to chew up big chunks of mainframe CPU time.

Apopular way to avert this dilemma is to downsize data warehouses to less expensive Unix environments. However, Unix platforms are still highly vulnerable to security and reliability risks.

"A lot of people don't see their way clear yet to moving their data warehouses down [to Unix], since they have so much code wrapped around these [mainframe] systems," said Ken Orr, principal at The Ken Orr Institute, a research firm in Topeka, Kan.

Indeed, mainframe-based client/ server data warehousing is far from extinct. Worldwide shipments of mainframe MIPS surged 30% between 1993 to 1994. This year, shipments are expected to top 220,000 MIPS, according to Charlie Burns, an analyst at Gartner Group, Inc. in Stamford, Conn.

Some savvy organizations have found effective ways of dealing with mounting mainframe cycles. For example. Union Electric Co. in St. Louis is using an Information Builders, Inc. tool called

Smart Mode. The tool uses ar-

tificial intelligence to minimize

Surprise! Warehousing doesn't always relieve the mainframe. Here's how to avert the extra cycles.

the resources required to respond to end-user queries launched against its Amdahl Corp. 5890 machine.

For example, when a Union Electric engineer queries the company's power outage system, the Smart Mode software parcels the query and checks the data against an inference engine. If the query exceeds a Union Electric-imposed threshold of 30 seconds, users are asked to submit their requests against an overnight batch environment, according to Steve Hasenfratz, the utility's supervisor of database administration.

MAINFRAME MAYHEM

However, data warehouses can exacerbate other cycle consumption problems.

Take Great Lakes Higher Education Corp. The Madison, Wis., firm's satellite offices were able to get file updates from the DB2 data warehouse over T1 and dedicated 56K-bit lines. But they could not share data with one another because of mainframe cycle constraints, according to Russell Judd, manager of IS development for the guarantor of student loan services.

So last year, Great Lakes implemented IBM's Distributed Data Communications Services — middleware designed to connect each office's Novell, Inc. NetWare LAN to the DB2 repository. Flush with the ability to off-load its data and business logic onto the Novell LANs, Great Lakes was able to remove a big chunk of the data synchronization processes required of its IBM 3090-400J host.

Although he was unable to quantify a reduction in mainframe cycles following the initiative, Judd said the project has relieved some of Great Lakes' batch processing activities that were once required to update local data. By centralizing the administration of its distributed data, Great Lakes has been able to reduce its IS staff costs by \$15,000 per year, according to Judd.

Nevertheless, most data warehousing gurus continue to advise their clients to downsize their mainframe repositories to Unix and smaller server platforms. "What I'm seeing more of is the creation of mini-

> warehouses, where you can almost define the business view of a group and extract that off of a mainframe and onto a smaller server," said Ulka Rodgers, president of Group R, Inc., an Annandale, N.J., consultancy.
>
> ✓



Hoffman is Computer world's senior editor, User Strategies, in Rochelle Park, N.J.



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Reaching Rapprochement

BYSTEVE ALEXANDER



evin Danehy knows that the process of installing a client/server system involves something more fundamental than technology.

"It's a real war," said the manager of workgroup application development at Millipore Corp. "I've certainly been involved in conflicts."

This is the other side of client/ server, where diplomacy and conflict resolution skills may be more important than technical virtuosity or a knowledge of vendors. Information systems people who have been there offer practical suggestions for resolving conflict that range from seeking compromises to enlisting the chief executive officer's help and from playing the role of benign despot to bypassing corporate IS.

Most projects include stresses such as management "saying yes to your face and then throwing marbles under your feet," said Susan Cohen, an analyst at The Aarons Group in Marblehead, Mass., who has been working through technical implementations for 20 years.

POLITICAL

TURMOIL IS

INEVITABLE, BUT

DEFT DIPLOMACY

IS NECESSARY

TO OVERCOME

INFIGHTING

Why is client/server a political issue? Because in the past, information hoarding gave people power. Moving to client/server exacerbates the problem because it's all about user empowerment.

"If you had information others didn't, you could use it to get ahead," Cohen said. "When you say that people should share information [through client/server], it strikes a deep emotional chord." Client/server may also challenge the importance of a person's special work skills. "If the technology might reduce their importance, they will do everything they can to trip you up."

Danehy is in the middle of an information-sharing turf war between IS and field sales at Bedford, Mass.based Millipore, which sells filters and instruments that purify liquids and gases for pharmaceutical, food, microelectronics and health firms. The issue at Millipore is not whether client/server works but whose fiefdom will rule over the technology.

In 1992, Millipore decided to use client/server to automate its 120-Please turn to next page Continued from page 61

member North American field sales operation, thereby accelerating the follow-up on sales leads by days or weeks.

Although Millipore was an Oracle Corp. database user, it realized there was no Oracle software to electronically deliver sales leads. So it decided to use Lotus Development Corp.'s Notes, even though the groupware product wasn't compatible with the company's Oracle relational database.

"Lotus was so easy that users could write their own applications," Danehy said. "The trouble was that the end-user applications weren't tightly coupled with Oracle corporate applications." As a result, when a salesperson used Lotus to update the address of one contact at a major research hospital, the Oracle relational database would change the addresses of 1,000 other contacts at the same hospital.

The battle was on. IS wanted total control. Field sales wanted its easy-to-use lead tracking software. As of this writing, the dispute still hasn't been resolved.

But Danehy the diplomat is suggesting a compromise: Salespeople can keep the lead information in Notes for a while, but eventually it must come back to the corporate database in usable form.

He is guardedly optimistic that such a compromise will make both sides happy because IS will preserve its corporate database, and salespeople will still have a quick and dirty way to get their job done.

Danehy's not alone when it comes to turf battles. "It's partly our fault because we incent employees

TOP 5 WAYS TO BE A CLIENT/SERVER DIPLOMAT

- 1. Improve your chances for success by getting a high-level corporate sponsor for your project.
- 2. Don't assume you have political support; your project needs to be sold almost daily.
- 3. Be honest with people about how client/server is going to affect the organization.
- 4. Don't waste nonpolitical IS people by trying to remold them into diplomats. Bring in a politician from another department as a partner.
- Consider hiring consultants who specialize in conflict resolution (see list below).

and managers to defend their own territory," said Bill Murray, director of IS and strategic technology at Tribune Broadcasting Co., a Chicagobased TV and radio subsidiary of the Tribune Co., which publishes the *Chicago Tribune*. "But as we've been able to show managers how to harness the power of a client/server system, the more savvy ones have started to break out of silo thinking."

When Tribune Broadcasting began its client/server push in 1993, there was significant opposition from TV and radio stations to spending their own money on the client/server systems, Murray said. But opposition

diminished once management financial incentives were changed to favor using the system, which was designed to promote the sharing of video, audio and text among broadcast stations and daily newspapers.

Murray's political approach is what he calls "education with sensitivity."

For example, by allowing users a place to air problems, this approach gives them "a voice in how their world works."

Second, this approach can uncover problems that are easily solved but may have been frustrating to users. Finding out that the system needs to be available on weekends is a crucial point to those users working on projects.

"It's not dictatorial; it's more collegial. But there is, lurking behind it, an element of a benign despot. Because in the end, we all understand that we need to work out an acceptable solution and that the corporate view is going to carry a lot of weight," Murray said.

Not all client/server political battles have happy endings. David Cameron, a veteran chief information officer, recalled a losing political battle he fought in an earlier job as IS vice president at Wackenhut Corp., a security services business in Coral Gables, Fla.

In late 1991, Wackenhut planned to save \$3 million over 10 years by shifting its business from a mainframe to client/server. Despite the savings, the project was difficult to sell because it required increasing the IS budget by more than 40% in the first two years. Because Wackenhut's business offered only slim profit margins, second-guessing IS expenditures became routine.

To make matters worse, the company's client/server opponents, who had the chairman's ear, were badmouthing Cameron's project. "There was an opinion out there that this client/server thing was not as complex as these IS guys were making it seem. And there was enough disruption to plant the idea in the chair-

The following is a list of consultants who specialize in IS/business management conflict resolution:

Joe Johnson

Director of Organizational Development Consulting KPMG Peat Marwick Boston (617) 973-2981

Roger Sobkowiak

Managing Partner Software People Concepts, Inc. Munroe, Conn. (203) 452-1768

Madeline Weiss

Principal Weiss Associates Bethesda, Md. (301) 229-8062 man's mind," he said. The disruption was caused in part by Cameron's decision to replace about 70% of the existing 42-person IS staff for the proj-

"The chairman invited me into his office one day and said he believed he had the solution for our client/server problem through a contact he had. The chairman had honestly believed this guy when he said all we had to do was buy cheap PCs, put them on everyone's desk, network them together and download software from the mainframe," Cameron said.

Cameron's problems intensified when the corporate sponsor for his client/server project, the company's chief financial officer, left the company. Without a top-ranking advocate, Cameron eventually gave up and also left Wackenhut.

But he learned a few hard lessons: "You've got to keep everyone in line, keep rumors, speculation and alternate strategy approaches at bay and really control what's going on. When IS looks confused or pauses, everyone jumps on that," Cameron said. "The real danger is to assume there is support and understanding for client/server. It has to be presented and sold almost on a daily basis and packaged in a positive light."

STAYING OUT OF TROUBLE

How can you avoid political troubles or resolve them once they arise? Here are two client/server projects that went right and why their backers think they won.

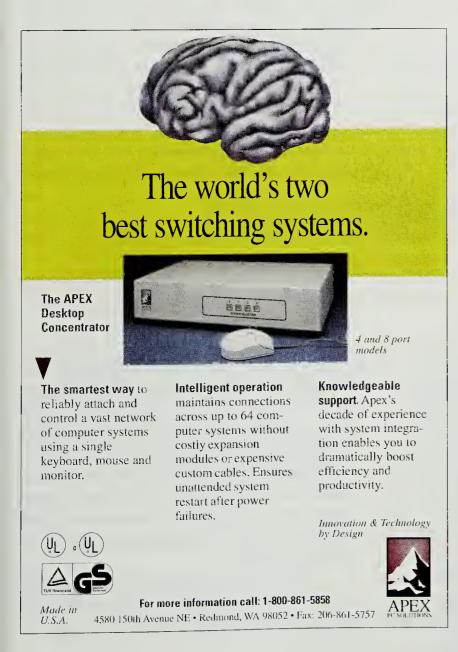
Jeff Greenberg, IS manager at Fort Lee, N.J.-based CNBC, the wholly owned, 500-employee cable TV subsidiary of the NBC television network, avoided political trouble by going around corporate IS.

"Some people at CNBC had a bad experience with the NBC IS people, and they didn't want to go to them. So we went to consultants and did it on our own," he said. "It was kind of a show-off thing, but it turned out all

John Severson, vice president of information technology at commercial air-conditioning manufacturer Trane Co. in Lacrosse, Wis., said he succeeded in introducing client/ server to his company's 7,000employee North American Commercial Group in 1993 because the CEO backed him from the beginning.

"I had no trouble selling it to businesspeople because it was the CEO's imperative," Severson said. "There were lots of opportunities for the CEO to blink, but he didn't. If you don't have unflinching commitment at the top, don't start because it will be difficult for you to carry it off."

Alexander is a Minneapolis-based journalist who reports on technology.





Architects As Change Agents



JEFFREY CHITTENDEN AND THOMAS ROBBEN

Chittenden (left) and Robben are systems architects at J. P. Morgan & Co. in New York. verything in business is changing: the external environment, product/service offerings, operations and systems and people. For each of these, we must envision where we want to go and then manage those parts we can control.

We need to respond quickly, yet the existing operations and systems supporting our businesses are difficult to change quickly. The stopgap solution is to develop yet another new process or system without trying to adjust, adapt or reuse anything we already have. The result is that our portfolio of operations and systems grows bigger, more expensive and more unmanageable.

As client/server tools give us more power and development speed, they often lead to more redundancies and unarchitected collections of "new legacy systems." We have to prevent more partially redundant systems from being created. We need systems building blocks that satisfy future business demands.

The ultimate solution is "componentization," or the creation of business objects. Gradually decompose applications into non-redundant, generalized, encapsulated components. Then create new applications and behaviors through the assembly (building block style) of components.

But componentization is a slow process that has to be attacked simultaneously from the top and bottom. The top-down approach takes time. First, agree on where the business needs to go. Pay strict aftention to anticipating, understanding and satisfying changing client demands. Then create one multilevel object model of the business, operations and systems. Break operations and systems into "chunks," or components, within which functions and data are localized.

In constructing this model, use functional models and data models to bridge the gap between the old world and the new world.

WE NEED SYSTEMS

BUILDING
BLOCKS THAT
SATISFY FUTURE
BUSINESS
DEMANDS.

Create, populate and evolve these models in one repository tailored to the firm's particulars. Dedicate one or two people to managing this repository.

The bottom-up approach is much more immediate. It re-

quires continuing discipline to look for emerging redundancy at its source and deal with it there, before it is translated into new operations or systems. One way to do this is via "architectural reviews/walk-throughs" of every new project. Here are some options to reduce redundancy:

Reuse what you already have. Reuse is the best alternative. Can you satisfy demand by using/reusing something (in full or in part)?

Grow what you already have. Growing/generalizing an existing system to satisfy new demands is ideal, but operations and systems are not easy to change, especially if they are not structured in a building block fashion.

Develop new applications with componentization and generalization. If you must develop new ops and systems (or parts thereof), can you do it in a way that prepares them for easy reuse by future business changes/requirements/projects?

Do an economic analysis of these possible alternatives. It must span five years or longer to provide fair comparisons.

Here are some other things to consider:

Search the portfolio of legacy systems for ones that can be shut down or simplified. Some systems may have to be partitioned, "wrapped" and "objectized" so those chunks can work as modular "black boxes."

Minimize the number of approved technologies. You must invest in the infrastructure, organization and culture, either explicitly or stealthily (strategic investment hidden inside tactical projects).

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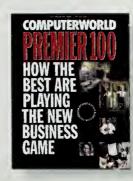
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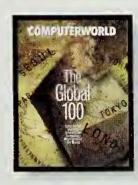


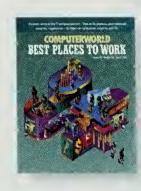
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Bluebird Systems
BMC Software, Inc.
Brio Technology
Bull HN Information Systems
Business Objects

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 Compuware Corporation
 Concepts Dynamic, Inc.
 Cray Research
- Cray Research
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LAN ADMINISTRATOR Because of NetWare's ubiquity, experts remain in high demand but can be found; there's still not much of a calling for NT experts **AppleTalk Banyan Vines Pathworks** SKILLS GAP **Novell NetWare IBM LAN Server NT** Server HIGH

LOW

RDBMS ADI	MINISTRATOR	
in high demand but	Sybase and Oracle administrators remain in high demand but can be found; other database experts are tough to recruit	
	DB2/6000	
	Informix	
H	CA/Ingres	
五	Progress	
Gupta SQLbase	Oracle Sybase	
Low	HIGH	
	DEMAND	

DEMAND

	SYSTEM MANA	AGEMENT
	ject managers and deskto are in high demand, while ecialists are in low deman	e capacity planning
SKILLS GAP	Capacity planning Directories	Project
S	Security	Management
3		Desktop Support
SK Lo		
	LOW	HIGH
	DE	VIAND

KEEPING 'EM HAPPY	
There are a number of things IS employees need in order to be satisfied	
More vacation time	42%
Performance bonuses	36%
Telecommuting	36%
Fitness/Wellness program	30%
Profit sharing	25%
Child care reimbursement	24%
Sabbaticals	23%
On-site child care	21%
Flexible hours	16%
Tuition reimbursement	15%
Elder care	12%
Spousal equivalent health benefits	10%

FIND THEM, KEEP THEM
What's needed to recruit people with skills in short supply?
New technology opportunities
Job security
High quality of work tools
Advancement opportunities
IS training
Clearly defined decisions
Contribution to IS/business goals
Organized communications
Clearly defined roles and responsibilities

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A ROUNDUP OF NEW PRODUCTS AND REVIEWS

Delphi Takes Fast Road

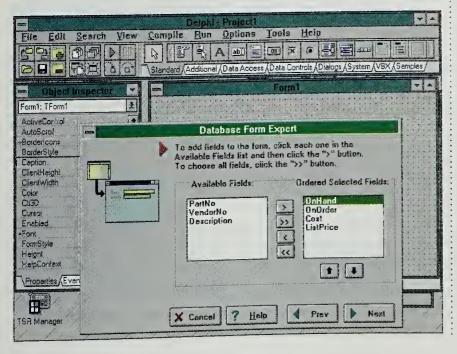
- By Christopher Lindquist
- orland is serious. Delphi, its new development tool, has the potential to revolutionize the market, if it hasn't arrived too late. This Windows-based rapid application development tool from the folks in Scotts Valley, Calif., features many advantages over competitors Microsoft Corp.'s Visual Basic and Powersoft's PowerBuilder:
- A robust, object-oriented development model.
- An extremely fast nativecode compiler.
- The ability to create Dynamic Link Libraries and custom controls without resorting to C.

Only two things make Delphi's success a little less sure: the lack of Microsoft's name on the box and PowerBuilder's momentum. Still, some



people have seen enough of Microsoft's name to last a lifetime. Further, Delphi is strong enough to help Borland International, Inc. build some momentum on its own.

Delphi is available in two versions. The \$199 version was designed for creating



stand-alone Windows applications. It supports Paradox, dBase and the included local Interbase server.

A full \$1,999 client/server version comes complete with SQL drivers for Oracle Corp., Sybase, Inc., Informix Software, Inc. and Interbase Software Corp. databases, plus a visual query builder and integrated support for external version control software.

No matter which version you choose, Delphi is a breeze. You simply drag and drop various objects onto forms, set up their properties in the Object Inspector and then define event handlers in the code window. If you can't find the control you need, Delphi supports standard .VBX controls, or you can build them yourself from within Delphi.

Delphi's interface is slick, using "notebook pages" with "tabs" to keep everything in order. Beginners or developers looking for a quick and dirty way to get started can run through tutorials.

The primary advantage of native code is speed. For starters, Delphi compiles remarkably quickly. Even relatively large applications can run in seconds. Once compiled, the applications run quickly, too.

Early testers report that Delphi applications run up to 10 times faster than similar

- Texas Instruments' tool suite for OLE applications
- Seer Technologies' integrated development tools
- Cadre Technologies' objectoriented tool kit
- Visix's integration tool

PRODUCT REVIEW

■ Informix Software's NewEra database

Visual Basic and PowerBuilder programs. Delphi's raw speed should allow it to keep going strong long after the competition has stalled.

Developers will also like Delphi's extensive debugging tools, including support for conditional breakpoints as well as the WinSight and Win-Spector monitoring and diagnostic tools. Even better, Delphi supports exception handling, which automatically traps drastic conditions such as memory errors and General Protection Faults and gives your code a chance to deal with them without losing data.

Because Delphi is built around Borland's Object Pascal, it supports the codesaving features of inheritance, polymorphism and encapsulation. Delphi will also compile Object Pascal source code.

Delphi is not perfect, however. Its printed documentation lacks a programmer's guide, though one is available at extra cost from Borland. And the included Report-Smith report writer isn't the fastest thing around.

But these are small nits for a first-generation product. And while Borland says it has no plans to go after Forte-class tools, Visual Basic and Power-Builder had better start looking over their shoulders.

Borland, (408) 431-1000. **Z**

Lindquist is the technical editor of Electronic Entertainment magazine.

Developer Tools Target Enterprisewide Applications

DEVELOPMENT TOOLS

ARRANGER

Texas Instruments (Software Business), Inc. Plano, Texas

WHAT: This software tool suite extends the reach of OLEbased applications into Microsoft Corp. Windows NT, Unix and MVS environments. You can build new applications as well by reusing business objects built with TI's Composer by IEF, a client/server application development tool kit.

Two versions will be offered: a professional version for IS professionals and a standard version for power users and systems staffers.

WHERE: Development and runtime environments will be available for Windows 3.11.

HOW MUCH: \$30,000 for a 20member workgroup.

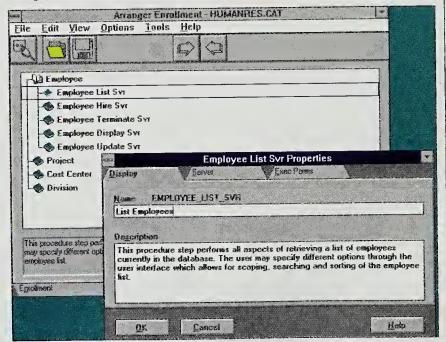
WHEN: Available in August from TI's direct sales force.

USER FEEDBACK: CINergy Corp., a \$2.5 billion Plainfield, Ind., gas and electric utility, is using an alpha version of Arranger to build a fuel management and phone management system. For fuel management, Excel users can invoke procedures to manage coal inventory data on an MVS mainframe running DB2. "They can dump the data into an Excel spreadsheet to do analysis and charting," said Mike Brown, manager of data resource

management. With the phone

PRODUCIS system, users of Windows 3.1 clients built with Visual Basic, Excel and Composer by IEF can access server data on Oracle7 running on NT. "Our view is to take corporate business rules and put them on the server and provide access to it from the desktop in a way in which you almost don't care what tools the users goes after it with," Brown said.

PHONE: (800) 838-1843, x6668



Texas Instruments' Arranger extends the reach of OLE-based applications into Windows NT, Unix and MVS environments

SOFTWARE TOOL SUITE

SEERHPS 5.3

Seer Technologies, Inc. Cary, N.C.

WHAT: A new version of SeerHPS and a suite of integrated tools for developers to build multitier, enterprisewide applications that operate within distributed LAN environments. New tools include

> NetEssential, middleware that lets developers deploy applications in heterogeneous environments and supports

dynamic routing; Freeway, a repository that enables teams of developers to share data definitions and objects; and TurboCycler, a rapid application development tool that generates programs from high-level models.

Version 5.3 also comes with a Window Flow Diagrammer, which captures graphical user interface window flow definitions into the repository. WHERE: Development platforms include Hewlett-Packard Co.'s HP 9000 Series 800 family; IBM's RS/6000 and AS/400; AT&T Global Information Solutions' 3000 server family; Sun Microsystems, Inc. SPARCservers; and Compaq Computer Corp.'s Proliant Pentium-based servers.

Transaction processing systems include CICS, IMS, Transarc Corp.'s Encina and Novell, Inc.'s Tuxedo. Networking protocols include IBM's LU6.2, LU2, TCP/IP, SPX/IPX and Named Pipes.

Databases supported are DB2, DB2/2 and Oracle Corp., Sybase, Inc. and Informix Software, Inc.

HOW MUCH: Introductory pricing: \$75,000 to \$225,000.

WHEN: Generally available later this month.

USER FEEDBACK: SeerHPS 5.3 is expected to deliver the capability Charles Schwab & Co. foresaw when it began using Seer tools five years ago.

"We're moving to client/ server platforms across the company and wanted a CASE tool that was platform-independent," said Lisa Villarreal, a director in Schwab's IS division. "We want to put business analysis and rules into a model and generate code for a variety of platforms. Seer had that capability to a degree, but with [Version] 5.3 you get that and become mainframeindependent."

With the Seer-built applications, Schwab expects geographically dispersed users across its vast enterprise to access customer service data residing on a variety of platforms. "We want to have data in the hands of people that use it every day," Villarreal said. "We have that today, but we want it in a form that's easier to use."

The discount broker also believes the use of Seer will come in handy, given the stock market's continued volatility. "If we need more trading servers, we can do so without having to add another mainframe," she added.

PHONE: (800) 499-7337

OBJECT-ORIENTED TOOLS

OBJECTTEAM APPLICATION FACTORY

Cadre Technologies, Inc. Providence, R.I.

WHAT: ObjectTeam Application Factory is a suite of object-oriented tools to develop reusable C++ components for Windows-based applications. The tool kit enables developers to automate componentbased application assembly, from design and wiring to testing, assembly and reuse. No separate fourth-generation language (4GL) or scripting language is required.

Applications are assembled by connecting prewritten components and frameworks. Supported interfaces include VBX, Microsoft Corp.'s Open Database Connectivity, Oracle Corp.'s Oracle, Sybase, Inc.'s Sybase and Object Design, Inc.'s ObjectStore.

WHERE: Initially available on Windows and Windows NT; Unix and OLE will be supported in the next release.

HOW MUCH: Complete suite begins at \$4,495 per user; site license discounts are

also available.

WHEN: Available through Cadre's direct sales force in the U.S. and Europe and through distributors worldwide.

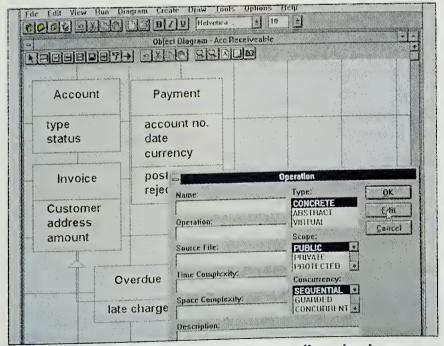
USER FEEDBACK: This tool kit could challenge Powersoft's PowerBuilder and Microsoft's Visual Basic in ease of use and development speed, said a corporate developer at a major East Coast mutual funds firm.

The firm is building a core object architecture that will support Windows-based access to multiple mutual fund products. "You can plunk the components into any C++ compiler, integrate them with a custom-built order processing or trading application and link to a GUI on the front end and a database on the back end," he said.

Most importantly, all this can be done without learning a proprietary 4GL.

"Our company's not in the software business. We want to focus on the business aspects represented in business objects" and not become class library or database experts, the developer said.

PHONE: (401) 351-5950



Cadre's ObjectTeam Application Factory allows developers to automate component-based application assembly

GUIDEVELOPMENT TOOLS

GALAXY APPLICATION ENVIRONMENT 2.5

Visix Software, Inc. Reston, Va.

WHAT: This release of Galaxy adds team coordination features, graphical user interface (GUI) building, faster performance and more platform support. The inclusion of C and C++ class libraries, a GUI builder and Distributed Application Services (DAS) facilitates the development of scalable, distributed applications that operate across all major operating environments and platforms without changing the underlying code.

Developers select compilers and debuggers to generate code native to the chosen deployment environment. With DAS, developers can put application logic on the most appropriate client or server. WHERE: Users can deploy applications on 48 platforms, including Apple Computer, Inc.'s PowerMacintosh and Digital Equipment Corp.'s OpenVMS for Alpha. **HOW MUCH:** \$9,600 per C de-

veloper seat; \$12,100 per C++ developer seat, with no runtime versions.

WHEN: Available now directly via Visix's direct sales force. **USER FEEDBACK:** Ford Motor Co. in Dearborn, Mich., hopes to build applications with Galaxy Application Environment 2.5 that enable compliance with The Clean Air Act of 1990. "We're using it [to build] the GUI portion and as an integration tool that makes sure everything can talk to everything else," said Mike Davis, project manager.

A recently rolled-out moni-

toring, reporting and tracking application runs Galaxy-developed client software on Sun Microsystems, Inc. and Hewlett-Packard Co. workstations and on Microsoft Corp. Windows and NT PCs. Emission and regulation data resides on an Informix Software, Inc. database. Users on client machines access the emission data and generate models that show the relationship between auto production levels and Clean Air compliance.

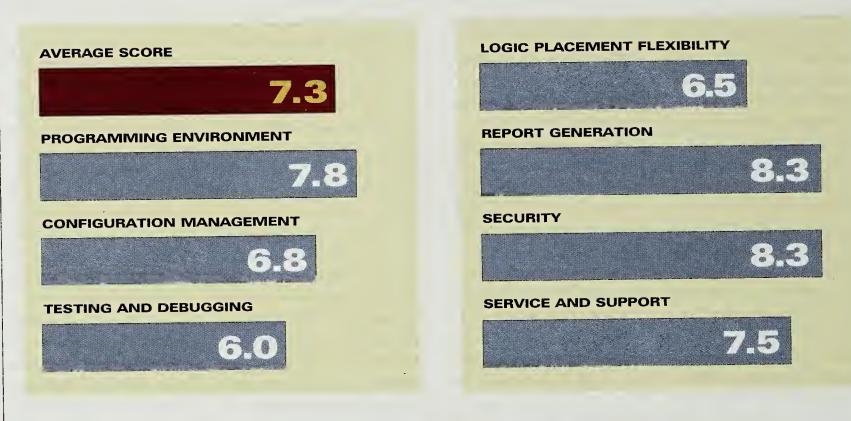
The application is in use at nine Ford plants and will be rolled out to 71 facilities by the third quarter. "Since Ford's so big, there's no itemized way to know what environments all these plants have, so it's important that we can write our code to run on many platforms," Davis said.

ATitle 5 permit application, slated for later this year, automates the generation of permit applications for Clean Air Act compliance by invoking database procedures from client machines. This application will eliminate the need for Ford personnel to manually fill out some 10,000 to 15,000 pages of forms.

Together, the two applications will save Ford an estimated \$150 million annually, according to Command Control & Communications for Industry in Fountain Valley, Calif. The savings will come primarily in labor cost: The monitoring, reporting and tracking application will eliminate the need to add a projected six to eight people per plant, which would cost Ford about \$125 million a year. The Title 5 permit application will save \$25 million per year, Davis said.

PHONE: (703) 758-8230

Informix's NewEra 1.0



The Client/Server Journal Firing Line is an evaluation based on interviews with users at four major corporate installations. The product under review is being used in a production environment. Ratings are based on a 1-to-10 scale, where ${f 10}$ represents extremely high satisfaction and ${f 1}$ represents extreme dissatisfaction.

INSTALLATION DESCRIPTION	TELECOMMUNICATIONS	MANUFACTURING CONSULTANCY	MANUFACTURER	FACILITY MANAGEMENT
CLIENT PLATFORM	486-based PCs and Sun SPARCstations	Pentium- and 486-based PCs	Sun SPARCstation 10, Macintosh	486/33 PCs
SERVER PLATFORM	Sun SPARCservers	IBM RS/6000	HP 9000 series, Model 890	Pyramid MIS-12-ES
NETWORK	Novell NetWare	Novell NetWare	Novell NetWare	Novell NetWare
NUMBER OF USERS	70	200	60-100	40
CHOSE NEWERA BECAUSE	Speed of development, class libraries	Code structure fit with legacy 4GL programs	Strength of Informix 4GL point language	Fit architecture in place

Informix Gets Attention With NewEra

VISUAL PROGRAMMING TOOLS **AND CLASS LIBRARIES ARE** HITS WITH EVALUATORS

o. 3 in the database market routinely means third in line for third-party support. Such has been the case for Informix Software, Inc., the Menlo Park, Calif., database

company that has survived in the shadows of Oracle Corp. and Sybase, Inc.

But that may be changing. New-Era, Informix's object-oriented development environment for building database applications, is bringing the vendor long-awaited attention.

Class libraries from Logic Works, : Inc., TMS, Inc. and Lotus Develop- the box to add specific functionality.



ment Corp., for instance, were a welcome sight to four recent evaluators of NewEra. Class libraries are prebuilt, task-specific programs from third-party vendors that users can snap in-

to a development environment such as NewEra to speed up coding.

The participants were more accustomed to a fourth-generation language (4GL) environment than to a modern, graphical, event-driven environment. So they greatly appreciated the ability to use application components out of

"We don't want to always have to reinvent the wheel," said John Shoemaker, a software engineer at Motorola Computer Group in Tempe, Ariz.

On the downside, evaluators said NewEra's configuration management and teamoriented development facilities need refinement.

At the same time, they liked its visual programming tools and the power of the programming language, despite the about-face approach from Informix's previous 4GL

In fact, all of the evaluators said the new language forced them to overhaul their current Informix applications to take full advantage of NewEra's power. Most were appeased

by the fact that class libraries would add some of the functionality without coding.

Informix predicted that its half-million 4GL users will produce the majority of NewEra licenses, with Sybase and Oracle users providing outside targets.

The four companies interviewed for this evaluation included a telecommunications company, a manufacturer, a facilities management firm and a manufacturing consultancy. The format was designed with help from Howard Rubin and Associates and Technology Investment Strategies Corp.

PROGRAMMING ENVIRONMENT

Taking full advantage of New-Era's object-oriented lan-

guage will most likely mean a lot of work for longtime Informix users with a great deal of 4GL legacy code. If the code is highly structured and the event-driven aspects of 4GL already conquered, porting might be easy. "But if the code was all over the map," as one evaluator put it, "then you're in for some late nights."

MANUFACTURER: "Our code is very modular, so getting it to NewEra form is not that difficult. But instead of just converting it to a GUI 4GL, we'll rewrite all of it to make use of NewEra's full power."

Code conversion aside, Informix shops will have their hands full with retraining.

TELECOMMUNICATIONS:

"Most of our developers have

spent their careers programming in only 4GL. They have never seen event processing, and it has got us more than a little concerned."

When asked about their preferred development platform, evaluators gave Windows the nod over Unix.

TELECOMMUNICATIONS: "Windows' response is more friendly than the Motif Unix environment. Things like doubleclicking and modal windows make sense on a PC, not in Unix."

Users were also nagged by a few trivialities.

MANUFACTURER: "When writing to disk, it doesn't give an indication that it's doing anything, like an hourglass."

CONFIGURATION MANAGEMENT

NewEra's configuration management needs to be improved, users said. Although every evaluator credited or faulted his own environment for control management, all said better regulations from NewEra would mean one less detail to worry about.

Informix said it does plan

to deliver a configuration managment tool in its next release (see vendor response). TELECOMMUNICATIONS: "Informix really needs to address configuration control and group development in general. I have five developers, and everything is being done behind the scenes. I can't stop them from deleting important pieces of code if they go outside a window manager."

TESTING AND DEBUGGING

NewEra's interactive debugging capabilities were easy to

Please turn to next page

WHAT'S NEW

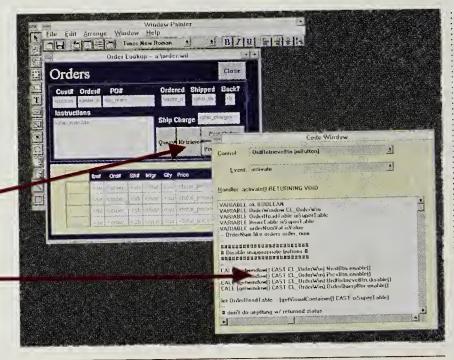
NewEra's window painter streamlines the application building process through a palette of fully functioning visual controls that can be dragged and dropped to create an interface.

When this RETRIEVE BUTTON is painted on the screen, its code is automatically generated and accessible through this CODE WINDOW, allowing developers to write additional segments to respond to user events.

Continued from page 75 use and worked well, users said. But all evaluators said they rely primarily on their own code-checking abilities, not through any fault of the debugger.

CONSULTANCY: "If you know the structure of your own code, it's easier to put in a display statement and do a recompile. But if something is really baffling us, it's helpful to walk through line by line with the debugger."

Performance monitoring is a sought-after capability that was left out of the debugger and NewEra altogether. MANUFACTURER: "It finds bugs, but it doesn't point out what kinds of iterations are occurring. I want to know where the processing time is being



spent" (see vendor response).

LOGIC FLEXIBILITY

One of the characterizing issues of second-generation client/server tools such as NewEra is their ability to place applications on clients or servers regardless of their intended platform.

The July release of Version 1.2 — a preview release of Version 2.0 due in the fourth quarter - advances logic placement further. Its application partitioning function will allow an application's logic to be broken out and placed wherever it will be most efficiently accessed.

CONSULTANCY: "NewEra makes it possible and easy to have logic on either the server or the client. Basically, it's us-

ing [the database's] stored procedures. The only problem is, they're Informix-specific, but there is no getting around that."

Existing 4GL stored procedures will not go to waste. One evaluator had no problem reusing them in NewEra.

TELECOMMUNICATIONS: "Our 4GL-built system was designed with a lot of stored procedures. Now we just call the stored procedures in [the NewEra-built application] vs. calling them in the 4GL [application]. It just carried right over."

REPORT GENERATION

NewEra is bundled with a stand-alone graphical report writer called ViewPoint Pro, which users said is easy to

use. But because Ace, the 4GL report writer renowned by all Informix users, also works with NewEra, two evaluators chose not to give it up.

MANUFACTURER: "A lot of our people are familiar with Ace and still see it as a powerful way to get reports. It works fine with NewEra, so they get their choice of tools."

SECURITY

NewEra will apply most of the basic security levels through user-modifiable templates.

FACILITIES MANAGEMENT:

"There's a cookbook of templates in there for user security, application security, field level, etc. We modified them to build our own security."

The other evaluators relied on security-specific products and in-place architectures to secure their databases.

MANUFACTURER: "We have a security matrix in the database to assign user access. We just haven't had the need to apply any more security with NewEra."

TECHNICAL SUPPORT

As in most beta sites, users interviewed for this review leaned heavily on Informix's support squad. Responsiveness was described as quick and efficient, but first-release malady meant the support team needed time to find the bugs themselves.

MANUFACTURER: "I used E-mail exclusively to contact their support. Most of the time they were very quick in resolving issues, and some they never found the answers to."

Compiled by Kevin Burden, Computerworld's senior researcher, Firing Line/ Scorecard.

INFORMIX RESPONDS

WINDOWS AND MOTIF DIFFERENCES:

NewEra was designed to provide the native look for both Windows and Motif rather than assume one set of rules for both platforms.

CONFIGURATION MANAGEMENT:

Group development and configuration management is now handled through Intersolv, Inc.'s PVCS tool. NewEra's next release will have an object repository built from Versant

Object Technology Corp.'s object database that will add better version control over individual objects and components.

PERFORMANCE MONITORING:

Informix will add tools to Version 2.0 or 2.1 for performance monitoring of individual programs and applications partitioned across the network. But for now, users can use any thirdparty tool that works with C.

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Where distributed computing meets business objectives

1995 Editorial Calendar

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June 1	April 12	Vertical Market Focus: Retail Section Feature: Product Focus on Development Tools	Sun World May 22 - 25, San Francisco Mobile World June 6 - 8, Dallas Int'l DB2 Users Group June 11 - 15, Orlando, FL Client/Server World June 13 - 15, Boston PC Expo June 20 - 22, New York City Enterprise Computing July 26 - 28, Chicago	Harvey Study
Aug.	June 28	Vertical Market Focus: Insurance Section Feature: Product Focus on Networking	Object World Aug. 15 - 17, San Francisco Networks Expo Sept. 12 - 14, Dallas Interop + Networld Sept. 25 - 29, Atlanta Unix Expo Sept. 26 - 28, New York City	Harvey Study
Oct.	Aug. 23	Vertical Market Focus: Transportation Section Feature: Product Focus on Database Tools	SIM Fall Conference Oct. 22 - 25, Orlando, FL Software Developers Conference Oct. 3 - 7, Washington, D.C.	Harvey Study
Nov. 1	Sept.	Vertical Market Focus: Brokerage Section Feature: Product Focus on Development Tools	Comdex Fall Nov. 13 - 17, Las Vegas Client/Server World Dec. 5 - 7, Chicago DB Expo Dec. 5 - 7, New York City	Harvey Study

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COMPUTERWORLD

CLIENT/SERVER JOURNAL

Where distributed computing meets business objective:

On June 15, Meet the 20 Top Users of Client/Server Technology

in a special edition of Computerworld Client/Server Journal



The Magazine

Client/server. Where's it at in the real world? You'll find out in a special June 15 edition of Computerworld Client/Server Journal. With the expertise of Cambridge Technology Partners, a world renowned client/server consultancy, we surveyed more than 250 North American organizations to gauge their client/server prowess. Our special issue will list the 20 most effective users of client/server technology by measuring their:

- Investment in infrastructure.
- Application architecture and deployment.
- Applications' hard and soft benefits.
- Technology/business strategy alignment.
- IT management philosophy and culture.

The Event

On June 15, at DCI's **Database**& Client/Server World in Boston,
you're invited to a panel discussion
at 9:30 that includes representatives
from several of the Top 20 companies,
the survey judges and moderator
Alan Alper, editor of Computerworld
Client/Server Journal. Hear firsthand
what went into selecting the Top 20
and how these organizations made
client/server work for them.

For more information on this panel, call (508) 470-3880.





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COMPUTERWORLD CLIENT/SERVER JOURNAL

Where distributed computing meets business objectives



Avoiding 'Bug' Season

o avoid sleepless nights about what worrying might go wrong, a client/ server implementor needs to know where problems are likely to arise. Learning how to prevent disaster through preparation and awareness is therefore essential. What follows are suggestions to prevent potential client/server "gotchas" from getting you.

YOU. Are you a technologist? With client/ server, the technologists should not be in charge of project management. Arrange to have a business manager run the project to make sure it tracks closely to the company's business objectives [CSJ, February 1995].

As a technologist, you need to stay up to speed on the business goals and guide the decision-makers through the technology quagmires but let the business managers drive the implementation and set priorities. With this approach, you will avoid creating a system that provides the wrong function at the wrong time for the wrong people.

YOU, PART II. Many IS directors have a Cobol background and little experience with GUI development. This generation gap makes it difficult to design training and anticipate development problems. Send yourself to a GUI development class.

THE POWERS THAT BE. Politics is a dangerous game, especially if you're caught between hostile forces, such as departments within your company that want their project to go first.

Try to establish an executive committee that confers on priorities with the business units and reaches consensus.

THE HOT ROD SYNDROME. It is tempting to buy best-of-breed technology for various client/server components before selecting projects. With car engines, you can count on best-of-breed components working well together. But client/server components are not

CLIENT/SERVER TECHNOLOGY IS LIKE AN ONION — THE MORE LAYERS YOU HAVE TO CUT THROUGH, THE MORE YOU'LL CRY.

necessarily compatible, which means decisions about components have to be made interdependently.

AD HOC, ANYONE? Some end users like client/server because they can do it themselves, with lots of creativity and no systems management. They pick the proj-

ects and pay for them. You fix them when they fail. One way out of this anarchy is governmental structure. You need an overall systems architecture from which you can select project candidates. Such an architecture can help govern users who want systems that don't make sense to the business or that will require client/server tool sets you don't support.

HE'S REALLY GLUELESS. In your project plan, have you scheduled time for integrating the components at the interfaces? Remember that in this multivendor environment, "dirt collects at the interfaces." It takes lots of time to clean.

And get out your hanky: Client/server technology is like an onion — the more layers you have to cut through, the more you'll cry.

TESTING IS FOR SQUARES. If you were a teacher, would you let your students correct their own exams? In many client/server projects, the programmers also conduct testing. It's better to have someone else on the team write the test plan and perform the testing. This person is likely to get an ego boost whenever he finds a mistake, whereas the programmer's ego is protected if few mistakes arise.

The test designer should have a good grasp of how to test event-driven programs, especially mouse input.

Remember that client/server applications require three times as much testing as process-driven programs. Bugs that users discover in production hit hard on your credibility and cause delays.



SHAKU ATRE

Atre is president of Atre Associates, Inc., a Port Chester, N.Y., consultancy that specializes in client/server technologies.

The Back Page

THE 5TH WAVE



Conferences

■ RETAIL SYSTEMS '95

Chicago, June 20-23 The how-to event for all retail automation implementors and users. Contact: Retail Systems '95, Newton Upper Falls, Mass. (617) 527-4626.

■ THE DARK SIDE OF **DISTRIBUTED COMPUTING**

Chicago, June 27-28 Contact: Cambridge Technology Partners, Cambridge, Mass. (617) 374-2062 or E-mail mbeck@ctp.com.

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■ THE ANNUAL CONFERENCE **OF DATA WAREHOUSING** MANAGERS

Washington, July 24-28 Contact: The Data Warehousing Institute, Washington,

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SCALING WALLS: MATCHING BUSINESS REQUIREMENTS TO CLIENT/SERVER APPLICATIONS DEVELOPMENT

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APPLICATION DEVELOPMENT STRATEGIES

New Orleans, Sept. 13-15 Contact: Meta Group, Inc., Stamford, Conn. (203) 973-6700.

Data Minefields

atabase, data transfer, : middleware and hardware vendors are all touting the great benefits of data warehousing. Sadly, too few of them are pointing out the problems their users are having with it, according to The Data Warehousing Institute in Washington.

A new report by Forrester Research, Inc. in Cambridge, Mass., further drives home data warehousing's pitfalls. Based on a survey of 50 Fortune 1,000 companies, Forrester has concluded that "global data warehouses are often unused and ignored by end users, who have neither the time nor the training to navigate these oceans of centralized data."

But data warehouses are

still a very real investment at many organizations, even if optimizing their capabilities can be tricky. So for those firms, The Data Warehousing Institute's "Top Ten Mistakes to Avoid for Data Warehousing Managers" booklet may have valuable insight.

The booklet is available to our readers at no cost. To receive your free booklet, please send a brief description of your current or planned data warehouse project - goals, hardware and software tools, users, lessons learned or insight requested — to The Data Warehousing Institute, Suite 1100, 1815 H St. NW, Washington, D.C. 20006 or E-mail info@warehouse.org. Include your current mailing address.

TOP Ten Mistakes to Avoid for Data Warehousing **Managers**

- 1. Setting expectations that you cannot meet and frustrating executives at the moment of truth.
- 2. Saying "this will help managers make better decisions" and other politically naive behavior.
- 3. Loading the warehouse with information just "because it was available."
- 4. Failing to add value to the data through denormaliza- : 10. Focusing on ad hoc data tion, categorization and navigation assistance.

- 5. Choosing a data warehousing manager who is technology-oriented rather than user-oriented.
- Focusing on traditional, internal, record-oriented data and ignoring the potential value of external data and of text, images and, later, sound and video.
- 7. Delivering data with overlapping and confusing definitions.
- 8. Believing the performance, capacity and scalability promises of the vendors.
- 9. Using data warehousing as a justification for big case and data modeling.
- mining and periodic report-



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